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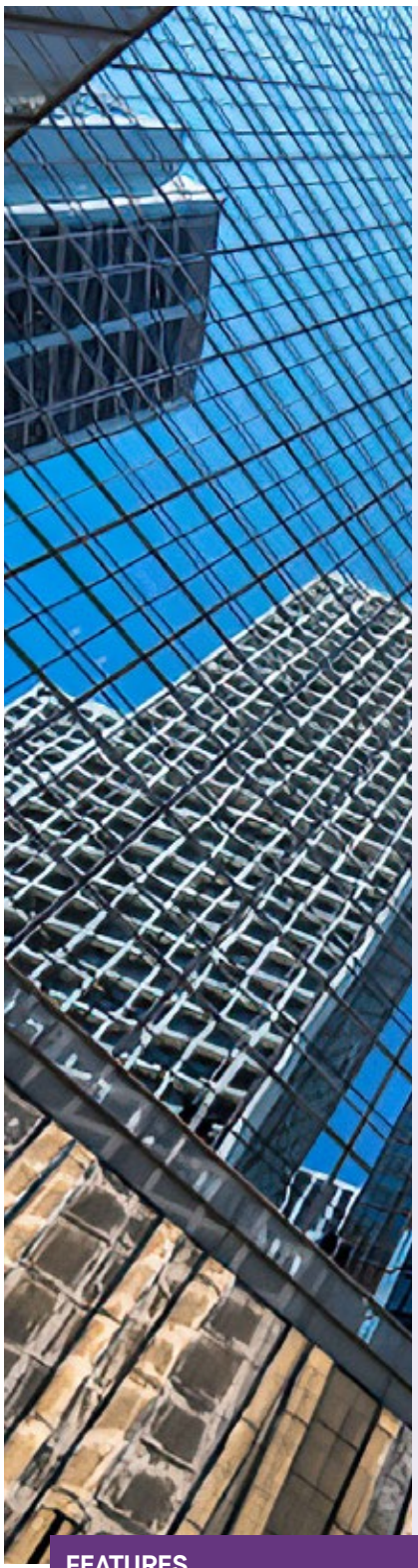


As I pen this for the summer issue, the weather outside is changing constantly from blue skies to downpours of rain within minutes!

I was greatly saddened by the news of the death of one of the Institute's monumental figures in April – Tony Lodge PCSAAT MCIAT. His drive and spirit in the formative years of CIAT led us to where we are today and a tribute can be found on page 48. Whilst a relatively new Institute compared to others in the built environment, the Institute is fortunate to have had many of its founders see the remarkable work and achievements that were not thought possible in 1965. We treasure George Lowe PCSAAT MCIAT as our last remaining founding member.

With the yearly cycle, we are once again at subscription renewals – this time for 1 May 2021-30 April 2022. Members and affiliates will have received their subscription notice by post and email. We very much hope that you will continue to be a part of this community, which serves as the benchmark for the finest in Architectural Technology.

This issue comes with a health and wellbeing theme which are at the forefront of designs with the impact of the COVID-19 pandemic, which has affected everybody. By the time you receive this, we will hopefully be near the end of the restrictions and the start of returning to a new 'normal'. If you are struggling or need support then do not forget the Architects' Benevolent Society (ABS) who are there to support members and affiliates – details are on page two.

A three-day e-conference was held at the end of April in India on the Technology of Architecture – Futures. It was hosted by CIAT in collaboration with Vellore Institute of Technology (VIT) and featured a range of speakers from the world of Architectural Technology and architecture. Presentations covered industry practice, academia and research on important themes in construction and the built environment. More on this in a future issue.

At the back of this issue, we list all those Chartered Architectural Technologists who have been amongst the first to be awarded the Fellow class of Membership. Fellow, FCIAT, complements the 'Chartered Architectural Technologist' professional qualification and is an acknowledgement of a Chartered Member's significant contribution to and/or excellence in Architectural Technology. If you are interested in applying then please visit our website.

Do not forget that the AT Awards are still open and closing dates are approaching in June and July. This is a great way to have work recognised whether for a project or in the discipline. You can find all the information you need at: architecturaltechnology.com/awards/atawards.html.

In my usual sign off, please do get in touch as I would love to hear from you regarding anything in this edition or if you have any ideas for future articles – this is your Journal and I welcome all ideas and feedback – email me at editor@ciat.global. As I have not received any communication, I can only trust this is a good thing and you are enjoying each issue.

I will leave you with this; what did one wall say to the other wall? Meet you at the corner!

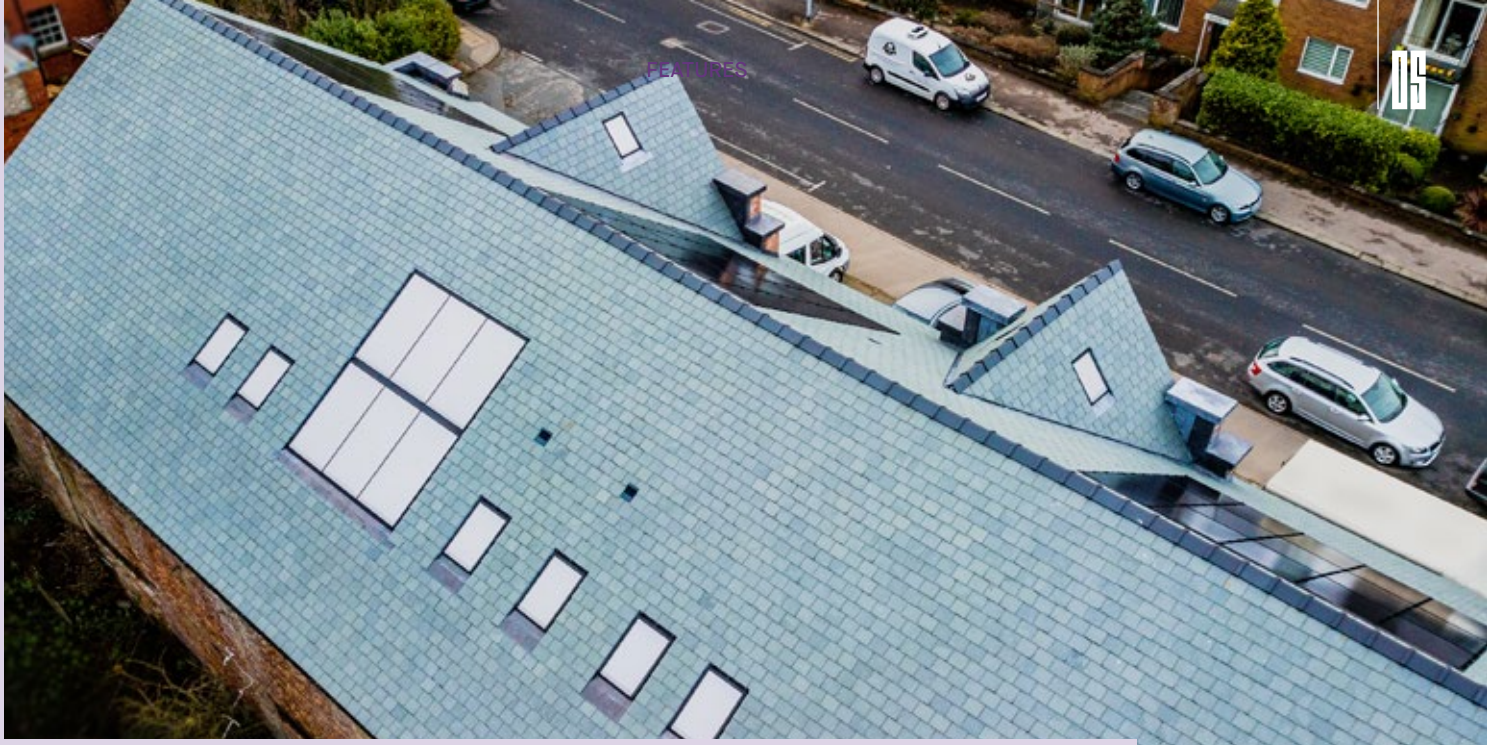
Until autumn

Adam Endacott
Editor

AT Awards 2021 are now open

The AT Awards opened for submissions on 1 February 2021.
See back page for details.

AT AWARDS



Old car showroom turned into new show home

Words by Stella Rooflights

Stella Rooflight supplied twelve bespoke conservation rooflights for a stunning conversion project in the seaside town of Lytham St Annes in Lancashire. The project, to convert a late Edwardian purpose-built garage and car showroom into a stunning 21st Century modern home, was the dream of designer and homeowner Sean Kember. The property was first designed and constructed in 1909 by local architect Thomas Hedges, for the Williams Brothers. The building remained a car showroom for over 100 years and to this day the building remains somewhat of an icon in the local area.

Conscious of the building's local history and importance the new owners were careful to preserve the original fabric of the building, while undertaking the much-needed renovation works, which would breathe new life into the building and transform it into their new dream seaside home.

A large part of the renovation and conversion works included the complete rebuilding of the old steel structured roof with new timbers and the installation of large conservation rooflights, which would flood the large open internal space with natural daylight.

Stella Rooflight were commissioned to produce a total of twelve bespoke conservation rooflights to fit the new openings. Ten smaller rooflights, which comprised of six opening and four fixed frames, were designed to fit internal rafters of 690mm x 940mm and 550mm x 740mm. A much larger non opening rooflight which was sized at 3000mm wide x 3500mm high was designed as a grand centre piece in the roof. This rooflight was supplied in two sections which were purpose designed to sit one on top of the other, with each section being divided into three panes.

All twelve rooflights were manufactured using marine grade stainless steel and finished in a high quality C5 marine grade black powder coating. An important consideration given the building's coastal location and the propensity to rust associated with mild carbon steel rooflights.

The Stella rooflights also included a high specification glazing with bioclean self-clean, solar control outer pane with a warm edge spacer filled with argon gas. The internal glass panel used Planitherm Comfort Plus to provide the perfect balance of light, warmth and comfort. The rooflight was finished internally with a stunning American ash interior liner.

All twelve rooflights were manufactured using marine grade stainless steel and finished in a high quality C5 marine grade black powder coating

Due to the size of the larger rooflights, a specialist crane was required to lift the rooflights from the delivery vehicle, over the building and directly into place. The installation required careful planning. The result speaks for itself. ■

From California to the Cotswolds

Words by James Evans, Communications & Digital Administrator

On our call in January, Mark Wildish MCIAT of Archiwildish tells me that this project had an unlikely start.

The client, an individual, had a scrapyard from which his son ran a haulage firm but he wanted to redevelop the land so he had something more valuable to leave to his family. The first idea floated was a 'drive-thru' café. But Mark and the client decided that the location – some miles out from the nearest village – was not suitable for this. People would not just make the trip for a coffee so it had to offer something more. Perhaps they could offer parking spaces for the village and provide buses in? With charging points for electric vehicles? The idea snowballed from there and soon a few charging points turned into 102 – making it the joint largest electric vehicle charging station in the world. The other is based in California.

By the time we got into the appeal situation the general perceptions were starting to change on how the site would actually be used and be operated...

The site would allow people who want to visit the picturesque village, Boughton on the Water, to park outside of the village and leave their cars there to charge instead of clogging up the high street. However, the scheme faced heavy opposition and planning permission was initially denied.

I ask Mark why the project had been so heavily opposed and how he dealt with that opposition, to get the project to the point it is at today.

"When we submitted in 2018 the general conception, if you looked at anything to do with electric vehicles at the time was that you charge a car at home, drive to work, charge it at work, drive home... And there wasn't any concept at the time of a charging station" he told me. Residents of another local village, Lower Slaughter, were also concerned about it bringing in too much tourism.

Time and a change in focus helped ease concerns. Mark says "by the time we got into the appeal situation the general perceptions were starting to change on how the site would actually be used and be operated and who would primarily be servicing and that that was a change within our own conclusions." As the popularity of electric cars had grown it had become clear it would be an important stop for those travelling through the area rather than just to the villages themselves.

A new plan also incorporated places to meet including a co-working space changing the scope considerably from the original.

Mark was keen to ensure the site reflected local surroundings as much as possible. He tells me that "my style as a designer is traditional with a modern twist. I sort of approach things from a very traditional perspective. I think you have only got to look back at the past to see that we got an awful lot right." He was also aware that the Cotswolds, as an area of outstanding natural beauty, required a very particular approach.

Mark says "when you come to a sensitive area like the Cotswolds. It has got a very set vernacular. If you start trying to stray away and making it too space-agey, something with a big curvy roof that is really going to stand out... instantly it is going to be resisted on the design front... but nonetheless, we obviously wanted the building to have a certain prominence."

The project seems to achieve this very well. Mark

points out that the 'good topography' allowed them to include a building with two stories that 'drops away' and appears to be one. "And the easiest kind of building that you can look at on this sort of scale is like a bath. That is where this idea comes from of stone pillar, stone wall, mono pitch roof... And that is kind of the basis of the design." This was Mark's first design for the building and it did not change.

Mark is glad that the building looks interesting and is noticeable as this may help achieve a goal for the project – increasing demand for electric vehicles. He says "if you are driving past something that looks like the best petrol station, then that is going to draw your attention. And it is going to make you think, well actually, why did I not make this switch sooner?'

I want to know how Architectural Technology fitted into the project. Mark says that being a Chartered Architectural Technologist informed "the practical application of what the building needed to do... like it needed to be as energy efficient as possible so that meant we got a nice mono pitch roof on with loads of solar panels, all facing in the right direction." He adds that it also helped him to consider accessibility – he designed something "where you can actually have good ramped approaches into the buildings... but you can also incorporate things like lifts... [and] things like disabled parking, putting those under the building obviously makes it so much nicer for people getting in and out of cars into wheelchairs whilst not getting wet." The local climate has clearly been considered!

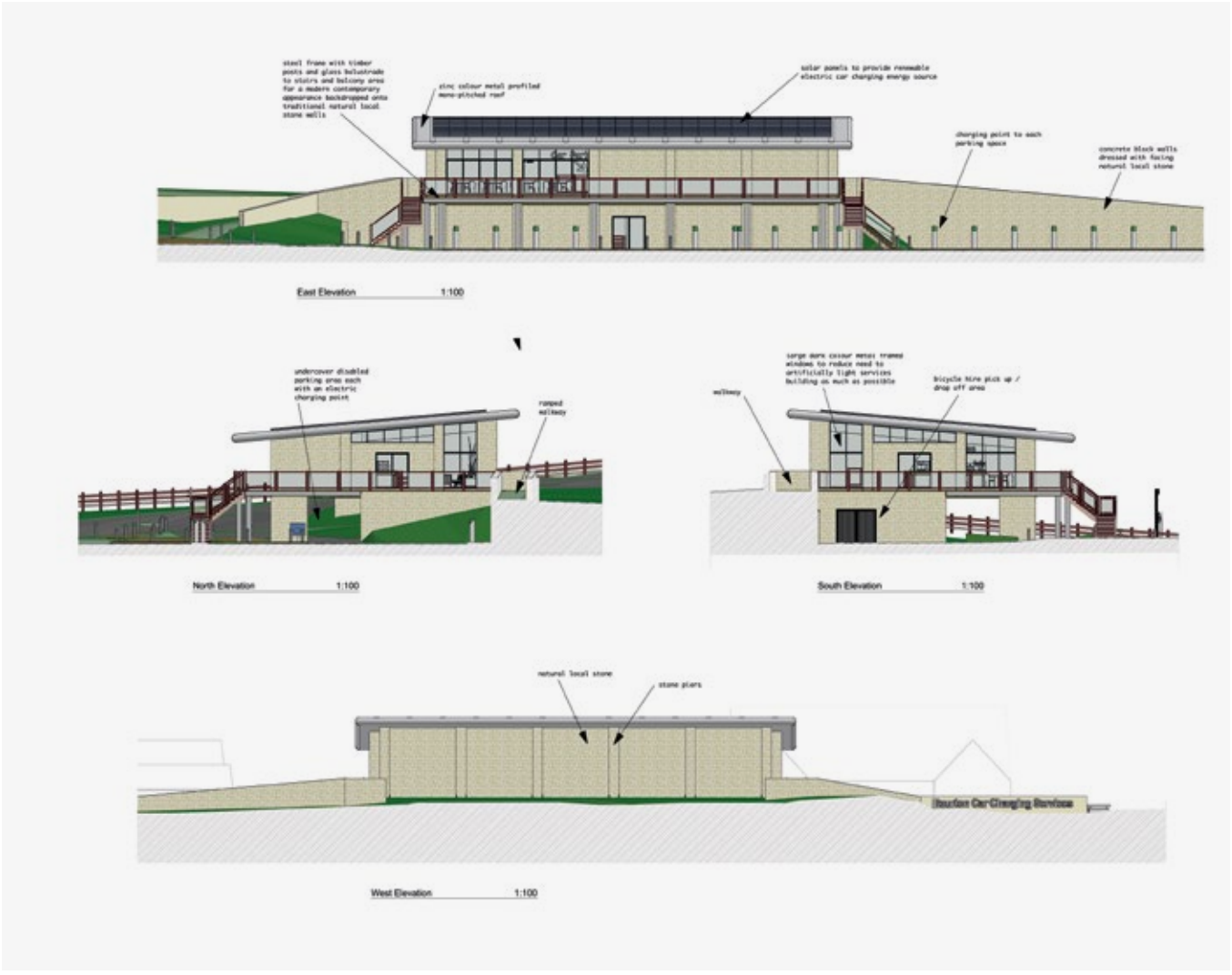
As a Chartered Architectural Technologist Mark sees the practical element of design as key. He says, "rather

than necessarily looking at it just purely from a design aesthetic point of view... design aesthetics derive from a practical application."

Working on a project with an environmental focus invigorated Mark and he describes feeling 'more impassioned' when speaking to planning officers. "I felt like I was really trying to sell the idea" he says.

It was a long road to get to where the project is today but Mark is clearly pleased. His client stood by him throughout a difficult process. He advises other professionals to 'know your clients' and how far they are willing to push for particular projects to move forward. That has been essential here.

And the project is moving forward. Mark tells me that he and the client are 'making it happen now'. *AT Journal* will keep a keen eye on it as it continues down this road (and parks up at the end!) ■



Sustainability in design – a corporate buzzword or the future of commercial property?

Words by Neil Coales, founder, Agilité Solutions

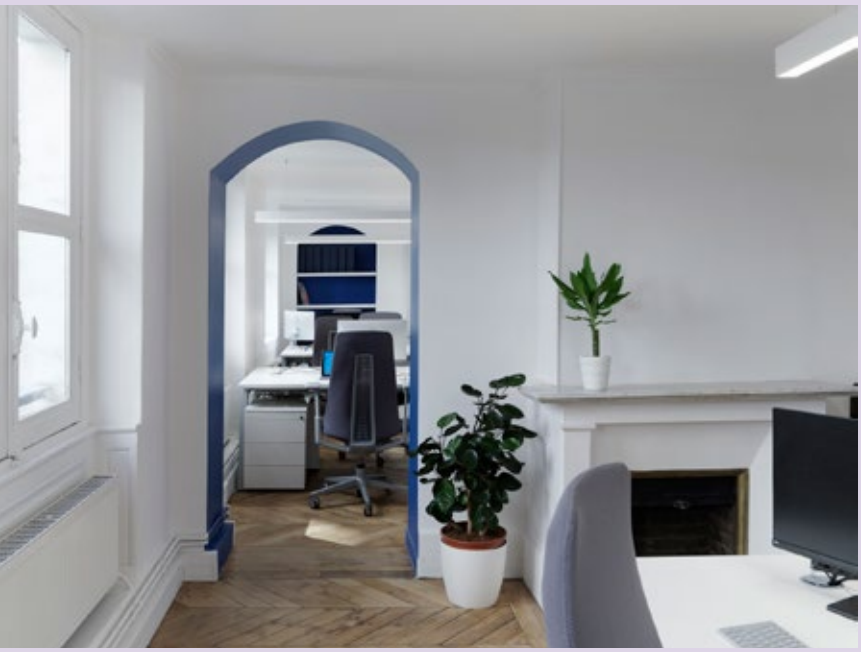
There is no escaping the fact that sustainability has well-and-truly found itself a seat at the boardroom table. Even prior to the events of 2020, clients presented briefs which centred around a project's carbon footprint – but is the notion of sustainability a longstanding principle that is here to stay, or just another corporate buzzword?

The architecture and construction sectors are not alone in its bid to minimise humanity's impact on the environment, but we are perfectly positioned to play a part in creating a sustainable future for generations to come – with efficiency and moderation in the supply chain, use of materials and even employees all proving central to its success.

Client ambitions, budgets and timescales all have a considerable effect on just how sustainable an end-product can be. It is the collective responsibility of all who operate in the built environment to be that 'critical friend' and challenge a brief if there is a way to make a project more sustainable – at any stage.

Our initial thoughts may skip to building information modelling (BIM) as the obvious solution, thanks to its ability to gather data throughout the project lifecycle – enabling faster, safer, less wasteful construction. This, coupled with more cost-effective and sustainable operations and maintenance, is a great place to start, but our attentions should not end there.

In fact, by empowering colleagues to strive for the creation of a development which not only creates a better future for the client, the building and its occupants, we protect the future of our planet too. While a new-build might be on the cards for a long-standing customer, is there a case to consider the refurbishment of a nearby site – or the potential to breathe new life into a dilapidated area, encouraging socio-economic growth in the process?



Sustainable supply chain in construction

With the best will in the world, the ability to develop a sustainable design solution is only ever going to be as 'open' as those which are setting the brief, outlining the budget and making the final decisions. That is why rather than adding such a sentiment as a 'nice to have', there should be a sustainability target set at the very start – with all parties bought into the strategy and rationale behind it.

That is in an ideal world. A great place to start is by making the case to source materials and labour responsibly – and preferably, locally. Negating the requirement to ship supplies across vast oceans in a bid to keep costs down, will help to reduce the emissions associated with 'getting' the infrastructure to site, but also means any product issues can be rectified quickly too.

With a vast pool of sub-contractors to choose from – in most locations – it pays to be picky. As well as sourcing endorsement from 'happy customers', look for proven eco-credentials too, particularly when it comes to recycling, travel and the firm's own procurement.

Naturally, there will always be cases where a development is driven entirely by budget and ambition – rather than longer-term implications of the design – or when it is simply impossible to procure goods in any other fashion.

But, even if you are surrounded by people for whom ethical construction sits at the very bottom of the pile, it is still possible to make a difference. Examine your own carbon footprint, implement change if necessary and be sure to highlight your own 'green credentials' as part of any bids.

Sustainability is about more than bricks and mortar

When considering sustainability within the built environment, it is important to look beyond the physical elements of construction. If the COVID-19 pandemic has taught us anything, it is that organisations need to be creating commercial spaces which fit the bill in terms of function, form and wellbeing.

From the rise in experiential retail and socially-distanced al fresco dining, to the creation of 'COVID-safe' offices, the ambition to curate holistic design is on the up – and nowhere more prominently than within the office environment.

While an overnight shift to homeworking gave the commercial landscape a complete shake-up, it has forced employees to consider what they want from their career too – as well as where they want their workspace to be.

As some brands close satellite offices in favour of one central hub, others are adopting more of a hybrid/co-working approach, with workers given the freedom to select their hours and desk locations – and in turn, their work-life balance.

Although it is not an approach which suits every corporate entity, many organisations have woken up to the need to offer sustainable solutions not just in the bricks-and-mortar sense, but via the attitudes and environment they offer colleagues.

Flexible and remote working is here to stay, and the requirement to create a workspace that answers the needs of all who use it – be that retail, hospitality or office staff – is firmly at the top of many priority lists. Fast-forward to 2021, and in their place are locations which support hybrid working and wellness – with hotdesking, 'breakout' zones and open-plan leisure areas.

Building sustainability into your HR and operational strategies

Including a nod to sustainability in your company's value proposition should hopefully be a given, but bringing those to life rests solely on the shoulders of the people who live and breathe them. Therefore, building your recruitment strategy around a desire to collaborate with those who share your way of thinking is key.

By sourcing talent which truly embraces the opportunity to push the envelope, while challenging clients to genuinely think about the way they intend to use a space, it is possible to start bringing about meaningful change.

Simply recruiting someone based on their 'green' interests is not where investment should start and end though. Offering continued training around what it means to be sustainable to colleagues – perhaps through CPD-accredited courses – will pay dividends in the long run.

Paper-free offices are nothing new, but technology allowed many architecture, design and construction firms to maintain some semblance of 'business as usual' during the height of the pandemic.

Switching lengthy proposal documents for concise PDFs, embracing 360-degree photographic reports, and implementing virtual walkthroughs and handovers are all solutions which are here to stay. And, to take that one step further in terms of operations, consider the potential of using green power to heat offices and reducing non-essential travel, and offsetting the environmental cost of commuting – both in-country and overseas. This can be done via initiatives which help to plant trees across the globe – such as TravelPerk – alongside a sustainability 'code of conduct' to ensure everyone upholds company commitments.

Of course, as a global population – never mind industry – we still have a long way to go. But as the people behind buildings which might outlive us all, it is our responsibility to create them with the future firmly in mind. ■

Flexible and remote working is here to stay

The effects of subframe systems on the overall thermal performance of external rainscreen walls

Words by SFS

The world is reaching a critical tipping point with global warming. Every year climate records are being routinely broken, CO_2 levels in the atmosphere rising annually and sea levels continuously creep up as vast ice sheets are melting and collapsing. In 2019, the UK Government declared a national climate emergency, meaning everybody has to take action against this global threat.

To help protect the planet's eco-system from being plunged into a whole new state, the thermal performance of buildings will be crucial in the fight against climate change. SFS, building envelope specialists, has developed a whitepaper that explores the effects of rainscreen subframe systems on the overall thermal performance of external walls, the specification process and unique solutions to reduce heat loss through the building envelope.

The climate change emergency

The biggest problem facing buildings today is the performance gap, where buildings use more energy in their operation than originally predicted by compliance calculations. It is not uncommon for quoted heat loss and/or energy consumption of a building to be up to ten times greater than forecast.

It is no surprise that future building standards need to be tighter to bring down such high levels of heat loss and energy consumption. While improvements to Part L of the Building Regulations have been mapped out to the 'Future Homes Standard', there is still little focus on achieving the quality assurance that would ultimately avoid the performance gap. At the same time, construction products and techniques must continue to improve to bring operational energy efficiency in line with designed energy efficiency.

Calculating an accurate U-Value

Energy efficiency can only be tackled by understanding the thermal performance of rainscreen walls, where building fabric heat losses are most prevalent as external walls are responsible for 35% total heat loss of a building. Part of that process for understanding how much heat loss a building has is finding out its U-Value.

However, when a U-Value is calculated, it must take into account where insulation is penetrated by the thermal bridges of a rainscreen subframe system. Many materials which bridge the insulation layer have a higher thermal conductivity than the insulation layer, creating higher rates of localised heat loss.

Reducing heat loss through rainscreen subframes

The careful selection, specification and installation of an optimal thermally efficient subframe system, supported by the appropriate thermal modelling is crucial.

Part of that specification is choosing the right rainscreen subframe system. Developments in recent years means that newer systems now have lower thermal conductivity, allowing contractors to choose a solution to lower the loss of heat.

Developments in recent years means that newer systems now have lower thermal conductivity, allowing contractors to choose a solution to lower the loss of heat.

The solution

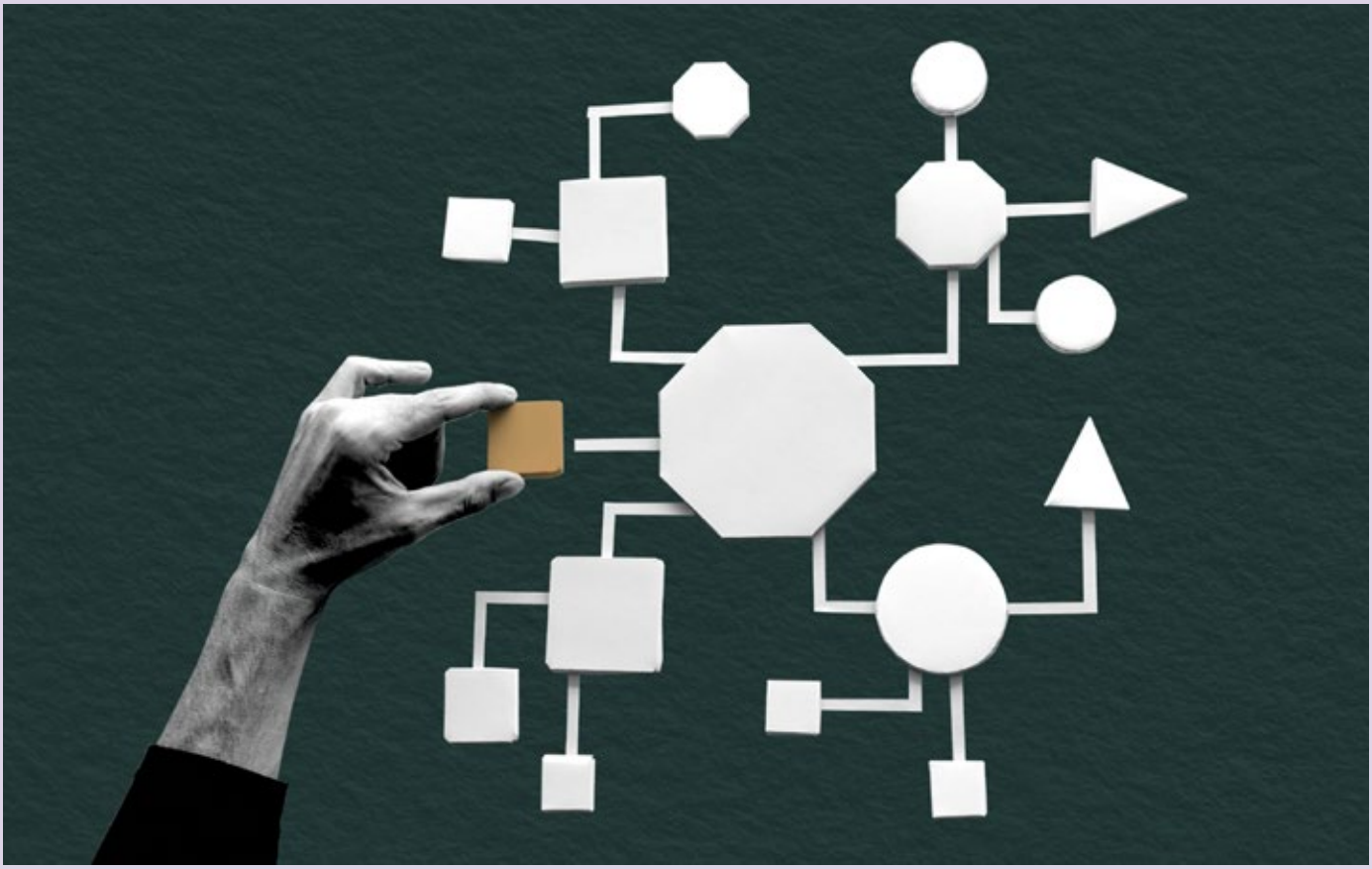
The relationship between the design and realisation of a building is key for greener building projects. Only by having the right specification for your rainscreen subframe can you guarantee that your external wall construction performs as well as intended.

So, what is the solution? SFS has been working on rainscreen subframe solutions that provide key energy saving contributions to any project featuring cladding.

To find out more how the SFS' NVELOPE® system can be optimised to your project to achieve the thinnest build-up and make your building greener, you can download the whitepaper https://notification.uk.sfs.com/en/thermal-whitepaper ■

Digital transformation – what does it mean?

Words by Michael Barber, Director, Amodal



The term digital transformation is widely used by the built environment sector, yet what does it actually encompass?

Ask anyone in the built environment sector to explain what digital transformation means to them and each answer will vary. Digital transformation is a multifarious term that takes on different contexts and definitions to different business cultures, and is dependent on a company's digital maturity. Some companies are at a lower base than others, where digital transformation means they just want to find information quickly. For others at a more mature stage, they may see digital transformation as adopting the latest technologies to improve processes. On the whole, digital transformation totally depends on individual aspirations, resource and situations.

In each of these examples however, there is the single desire to utilise or improve upon processes through the deployment of digital solutions. Yet in reaching this utopia, it is important to remember that it is a marathon and not a sprint. It is very easy, and tempting, to get swept up in seeing technological adoption as the endgame, when in reality, digital transformation is as much if not more about the journey. Yes, there are some truly exciting technologies at our disposal, but in order to digitally transform a business, it is imperative to start with the basics. A house cannot be built without solid foundations.

The core element of any digital transformation is having a consistent approach to information management. Technology will evolve rapidly in the next ten years, which is why it is fundamental to identify a consistent, standardised approach to information management. Begin with this principle and the technology can be adapted around it.

In terms of finding an approach that works for a business, the first step is to pinpoint your base and what you want to achieve. There really isn't a one-size-fits-all approach when it comes to digital transformation. However, certain principles remain the same. Many companies, for instance, decide to go on a digital transformation to deliver consistency, improve process and mitigate risk.

Either way, digging into and identifying a list of aspirations is important groundwork on the digital transformation journey. Creating a clear picture of defined timelines and achievable goals minimises the likelihood

of being left in the dark and enables businesses to see the wood through the trees. Lots of companies may say they want to digitise their portfolio, but have they actually taken the time to understand what it means to them?

In a way, it is about slowing down in order to speed up – account for your requirements and the rest will unfold. Take time to identify your information needs; set defined naming conventions and utilise industry standards such as ISO 19650. This standardisation and consistency will be the enablers for digital transformation.

Consistency is key

Many companies are aiming to get to a point where they have a consistent approach to information management. This craving for standardisation comes at little surprise given the industry's ingrained behaviour to work in silos. Architectural Technology professionals know all too well that each project works differently sometimes even within the same client. This occurs because for many clients each project is managed in isolation and driven by project teams, rather than them.

It is this pursuit of commonality and consistency which is driving clients to undergo a digital transformation. Their utopia will be realised through having defined naming conventions and processes across all of the projects, with information sitting in a common data environment (CDE). This standardisation is a far cry from working in silos and gives clients a firmer grip on their projects. Subsequently, it ensures they can ask the right questions to attain a holistic view of their portfolio.

In order to reach this destination however, it is important to tread carefully. Rolling out change on a large scale tends to be met with scepticism, mostly from those who will be using the technology and following the processes every day: people. Humans are creatures of habit and too much disruption can be really unsettling. This can be compounded by other things that keep us on edge including the industry's tight margins and contractual obligations. It is, therefore, an ambitious feat to implement new processes.

When laying the foundations, end-users and stakeholders must be brought onboard so they are not left behind. They need to know how the new processes and technology will benefit them, otherwise they will follow the path of least resistance. In this case, digital transformation will exist only in a vacuum.

It is all in the method

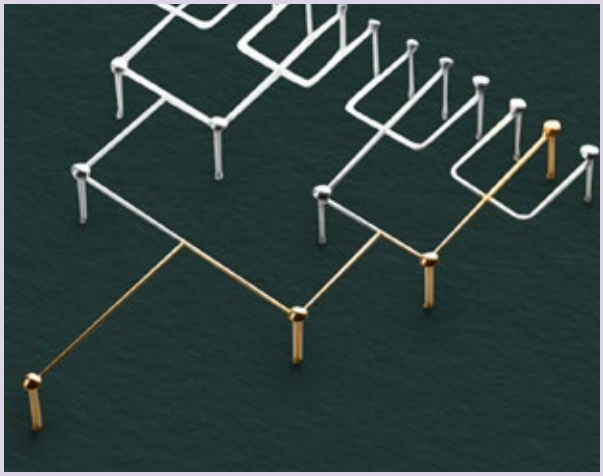
At Amodal we take a step-by-step approach, delivering tangible benefits in small increments. Whilst companies want to keep their long-term vision in mind, to get there, it is easier to break it down into bitesize portions. The level of change should be manageable.

Other more traditional approaches to digital transformation including the waterfall approach, are less reactive and agile. These tend to be large capital projects which often follow a fixed path. Project activities are divided into linear sequential phases, where each phase depends on the deliverables of the previous one and corresponds to a specialisation of tasks. On the other hand, an agile method is an incremental approach, where aspects can be tested and trialled in controlled manners. The agile method enables project teams to be more reactive to change, to see what is and isn't working. Agile moves with the changing tides of a business, reflecting its needs as opposed to following a fixed path that may not be the best route anymore.

> **The core element of any digital transformation is having a consistent approach to information management.**

Delivering small changes that are trialled across lots of projects – with the aspiration to execute a consistent approach across all of them – is ultimately what makes digital transformation less disruptive and more agile. This view of digital transformation is one which recognises the journey as a programme of works broken down into multiple phases. Tangible, measurable outputs are defined along the way, and change incrementally to reflect the differing needs of a business.

The definition of digital transformation will be continually up for contention, particularly when the journey means different things to various businesses. What is important to remember however, is the importance of laying solid foundations before embarking – and selecting an agile methodology that enables you to switch course if something changes. ■



Ensuring safety through sufficient fire specification

Words by Mick Hill, Lead Technical Manager, Profab Access

The release of the Draft Building Safety Bill is set to make the biggest changes to safety in 40 years through improving regulations to aid the built environment sector. The new Bill will help achieve a clearer and more consistent system that ensures individuals' safety remains the priority, not only throughout the initial construction process, but the entire lifecycle of the building.

The initial Hackitt Report revealed significant concerns surrounding the quality assurance of fire doors, particularly with regard to the certification of these components and the lack of available corresponding building information.

Just last year, an investigation from Inside Housing into the replacement of faulty fire doors by councils across the UK found that across 98 councils, around 10% (approximately 33,000 fire doors) were unlikely to satisfy the 30-minute standard.

While research such as this demonstrates just how far the built environment sector still has to go with regard to fire safety, the release of the Draft Building Safety Bill, along with the initial Hackitt Report and subsequent amendments to Building Regulations Approved Document B (Fire Safety), marks the first significant step in helping the sector to achieve a safer and more transparent environment for individuals to live and work within.

Dame Hackitt's recent speech at the Construction Leaders' Summit for the National Building Specification further addressed the need for an alternative approach throughout all stages of the design, procurement and build phases to deliver buildings that are both safe and sustainable.

The ongoing maintenance of these buildings and the components installed throughout them is therefore a significant factor, which will be addressed within the associated consultation of the Draft Building Safety Bill, which aims to strengthen fire safety in all regulated buildings of all heights throughout England.

While the actual application of the revised regulations and guidance may take until 2023 to become a legal requirement, as part of the implementation of the Building a Safer Future consultation, Dame Hackitt has highlighted the importance for senior figures to adopt a 'change of culture' throughout each aspect of their construction practices. This change in behaviour will ensure the buildings they develop are suitable throughout their entire life cycle and includes increased accountabilities during the design and development stage, as well as the position of an accountable person for the ongoing management of multiple occupancy dwellings.

In order to successfully meet the requirements outlined within the new guidance, professionals should take a proactive approach to the specification of passive fire safety components by selecting building products that supersede current industry standards and are supported by third party certified performance test credentials.

This includes having a clear understanding of the fire testing each product has undergone and the legislations it complies with. With specific regard to steel riser doors, professionals should specify solutions that have been fire tested to BS EN 1634-1:2014+A1:2018 or BS 476 part 22, as outlined in Annex C of Approved Document B Volume 2.

Where designated, the doors should also comply with BS 476-31.1 for smoke tests, BS8214 for the installation for fire doorsets and should be specified and installed in accordance with BS 9999:2017 for the Code of practice for fire safety in the design, management and use of buildings.

As the release of the Draft Building Safety Bill looks to ensure buildings are fit for purpose throughout their entire lifecycle by creating a new regime for ensuring the safety of residential buildings in England, built environment professionals should specify solutions that not only adhere to current regulations, but successfully futureproof a building. This ensures compliance with upcoming regulations, whilst simultaneously meeting the specific requirements of each individual working or living within that building.

This also ties directly into the 'golden thread' of information outlined within the Hackitt Report, with test certifications providing the necessary information to not only provide a transparent, digital trail of due diligence, but successfully communicate key information about a building and the components utilised throughout its construction to all relevant individuals.

Here professionals should look to work with manufacturers that provide comprehensive BIM objects, along with corresponding digital data and certifications to ensure they obtain the necessary comparable product data. This not only ensures correct specification, but also supports the 'golden thread' of building information by providing a clear trail of digital information that can be referenced and referred to throughout the entire construction process.

This also achieves collaboration between each individual involved in the design and construction processes, to not only deliver a safe and sufficient building, but to subsequently ensure its long-term safety and suitability for all individuals. The importance to achieve this successful communication and cooperation between all firms working across every aspect of a development is an integral part of Dame Hackitt's vision for building a safer future.

With regard to riser doors in particular, building professionals should look to specify bi-directionally fire tested models as the certifications successfully document the prevention of the spread of fire throughout a multi-storey building, regardless of which direction/location the fire starts in. This also evidences compliance with the test exposure from both sides as required by ADB, in addition to the asymmetrical clauses of BS EN 1634-1.

Because the riser doors are physically tested in both directions, it provides the confidence the integrity of the door will adequately withstand exposure to fire and smoke from both directions for the stated time period, eliminating the possibility for fire to enter or exit the riser shaft, limiting the potential spread of fire throughout the entire building.

Specifying products including fire doors that have been third party tested by a certified provider will also further enhance the 'golden thread' of information, as it provides a clear trail of evidence that ensures the passive fire product complies with all current legislations, whilst also going above and beyond in terms of best practice.

The certification of fire doors by an accredited third party, rather than being tested by the manufacturer themselves, also provides architects and their clients with the highest standards of confidence and assurance the doors will not fail in the event of a fire. This is supported by comprehensive test documentation that physically proves the suitability and performance of the doors, not only for the outlined duration, but throughout every stage of the manufacturing process.

This is because third party testers are involved throughout the entire construction process to ensure manufacturers implement appropriate measures that maintain manufacturing consistency and that the products tested are a true representative of production. This subsequently provides building professionals and their clients with unbiased reassurance that each riser door specified is of the highest quality and offers unrivalled levels of performance.

Built environment professionals should specify solutions that not only adhere to current regulations, but successfully futureproof a building.

While Bi-directional fire testing isn't a current industry requirement, professionals can face unlimited fines if the products specified fail to meet the standards legally required. To avoid this and ensure all potential risks are successfully mitigated against, individuals must demonstrate all reasonable steps have been taken during the specification process by choosing certified products that have comprehensive evidence.

This includes the documentation produced by third party fire bi-directional testing, which not only ensures both exposure faces where the ADB and associated standards require it, but reflects the principles of the Draft Building Safety Bill to help ensure a building will deliver, and continue to deliver, the highest standards in fire safety.

The proposed new framework being promoted by Dame Hackitt and the new building safety Regulator highlights the importance not only of successful specification at the very beginning of a construction project, but the necessity for collaboration between all key manufacturers, suppliers and contractors to facilitate a change in behaviour that places safety at the very forefront of all construction practices and approaches for the full lifecycle of the building.

As part of their combined commitment to improve and legitimise the testing, certification and installation of riser doors, Profab Access and the Finishes & Interiors Sector are working closely to develop comprehensive guidance for industry professionals. This includes installation guides that recommend best practices and methods for the correct installation of riser doors, whilst also providing clarification on testing requirements for riser doors to ensure legal compliance, whilst also raising awareness of the significant importance of third-party independent fire testing certification. ■

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Fire safety exclusions – the insurance position

Words by McParland Finn, CIAT Insurance Services

In the years following the Grenfell Tower fire, and the fall out of that and other similar incidents, the insurance position for the built environment sector, as a whole, has been increasingly difficult.

The hardening of insurers' attitudes have now resulted in substantial increases in terms of the premiums being levied, as well as a rise in the number of draconian exclusions that can have a significant impact on the cover that you may be able to obtain.

Whilst the various exclusions applied by insurers can be varied, for the purposes of this article we will concentrate on two areas, cladding and fire safety exclusions and the EWS1 form.

Cladding and fire safety

In view of the concerns raised by insurers in respect of claims against construction professionals relating to external cladding materials, and the fire safety aspects of buildings, the majority of policies now contain some form of cladding and fire safety exclusion regardless of the height of the building or the individual circumstances.

> The majority of policies now contain some form of cladding and fire safety exclusion

In the vast majority of (if not all) cases professional indemnity insurers are applying full exclusions of cover.

Unfortunately, whilst it is acknowledged that any reduction in the cover provided can and will be problematic, this is now the industry norm. As a result, we would recommend that you contact your insurance brokers in advance of your renewal to ensure that you have an opportunity to discuss what information any potential insurers may require and what options are available to you regarding your renewal.

Whilst the wording of the exclusions themselves will vary greatly between different insurers, the exclusion with respect to a 'cladding claim' can be along the following lines:

*'any **claim** directly or indirectly arising from or in any way connected to the combustibility of any composite panels and/or internal or external wall systems and any associated core/filler/insulation material and/or any fixing systems.'*

We cannot provide an indication as to what materials may or may not fall within the definition set out above and this would ultimately be considered by the Courts. However, the definition of a 'cladding claim' effectively includes the combustibility of any material used to clad a building.

It is important to note that, whilst it can be argued that the selected material is not combustible, this would be used in the defence of a claim. Unfortunately, this would not prevent the client from making the claim in the first instance.

In addition, policies can also contain a wider exclusion which effectively removes cover for:

*'any **claim** in any way related to the fire safety or fire performance of a building, or any part of it.'*

As the imposition of any type of exclusion can impact on your position, we would recommend that you discuss the nature of the exclusions with your insurance brokers. However, given the potentially substantial change in your insurance cover, you may also need to review your contractual agreements with your clients to ensure that you can still comply with any agreed insurance limits.

EWS1 form

Another contentious issue from a professional indemnity insurance perspective is the External Wall System Certificate of Compliance produced by the Royal Institute of Chartered Surveyors in conjunction with UK Finance or EWS1 form as it more commonly known.

The intention of the EWS1 form is for the professional signing the form to confirm that the external wall system complies with the relevant guidance or Building Regulations, or that remedial works are required. Whilst this may seem like a relatively straightforward task, the insurance position is markedly different.

As the form effectively requires the professional tasked with completing the form with accepting liability should any subsequent issues be identified with the property, insurers have taken the view that the level of risk this poses is unacceptable. As a result, the majority of policies exclude all liability arising out of the completion of the EWS1 or equivalent form.

It is important to remember that insurers acknowledge the expertise and experience of Chartered Architectural Technologists. However, the obligations imposed by the EWS1 form are weighted against the professional and, given that it would require significant and invasive testing to fully determine the position of materials used on site, the general view of the insurance market is that this is specialised work that should be left to appropriately qualified surveyors and engineers.

As with the cladding and fire safety exclusions, the insurance market as a whole is not prepared to accept the use of the EWS1 forms and cover for the forms would be both difficult to obtain and expensive.

We would hope that your policy would cover you for normal activities in respect of designing in line with the Building Regulations, in order that you may continue to practise as usual. It is important to check that your policy provides you with adequate cover in line with the Code of Conduct.

Members with any concerns, or that may require cover that might fall outside of what is currently offered, are advised to contact their insurance brokers to discuss matters further.

Alternatively, you can contact CIAT Insurance Services on 0161 233 4497 or email info@ciat-insurance.co.uk and we will be happy to discuss matters with you.

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Passive Fire Protection (PFP) is a vital tool in any fire strategy

Words by Alex Lawrie, Technical Manager, Nullifire

In the UK, there are two different types of fire protection methods, active fire protection and passive fire protection.

Active fire protection consists of fire detection and extinguishing systems, such as detectors, sprinklers and fire extinguishers, for example, which set off an alarm to warn of fire or help to suppress the fire locally.

This area of fire protection is often what we think of first and foremost in managing fire risk.

Passive fire protection is perhaps lesser known. It consists of solutions, which have been installed in the building framework to allow the structure of the building to resist the effects of fire for a defined period of time.

It is a critically important area, with passive fire protection solutions working by inhibiting the passage of flames, heat, smoke and toxic gases – and by helping to maintain the stability and integrity of a building's structural elements.

Built into the structure of a building to safeguard people's lives and limit the financial impact of damage to buildings and their contents – it is termed passive fire protection due to the fact that it functions without any human intervention or external energy supply, in the event of a fire.

Passive fire protection works by

- limiting the spread of fire and smoke by containing it in a single compartment;
- protecting escape routes for essential means of escape; and
- protecting the building structure thereby ensuring its sustainability.

Passive fire protection methods are intended to

- avoid the spread of smoke and toxic gases;
- avoid the spread of flames;
- contain thermal effects in the disaster area; and
- maintain the fire stability of structural elements

The mechanics of passive fire protection

Passive fire protection is highly complex but crucially important, especially as buildings become more sophisticated with increasingly intricate interior and exterior structures.

Passive fire protection methods are built into the structure to provide stability and into walls and floors to separate the building into areas of manageable risks – described as compartments.

To ensure the most effective partitioning of a building, the walls and floors of compartments must have a fire-resistance degree corresponding to the type of buildings, which are detailed in UK Building Regulations.

It is important to note that these compartments are

equipped and overlapped by multiple elements, such as doors, hatches, partitions, plastic, metal tubes, cables etc.

All fire proofing caulks around these elements must therefore make it possible to reconstruct (reinstate) the fire-resistance degree of the wall by providing fire resistance at least equal to that of the building structure.

Passive fire protection provision is required in all buildings within the UK, whether domestic or non-domestic. All building work must be carried out in accordance with the Building Regulations 2010, Fire Safety, Approved Document B. Full details can be found on the gov.uk website.

Due to the regulations in place within the UK, the structures in which we live, including publicly establishments (ERP) and high or very tall buildings (IGH and ITGH), must have high fire-resistant qualities.

There are a multitude of factors that influence the amount of fire protection required in a building, but all solutions offered by Nullifire will allow the structure to withstand within a fire for a set given time.

Achieving passive fire protection

There are a number of ways that Nullifire can support the work of Architectural Technology professionals looking to ensure compliance, with our products supporting all the passive fire protection requirements of a building through two distinct solutions:

- Fire stopping – these are solutions for construction movement joints, gaps and service penetrations.
- Intumescent coatings – these are reactive coating solutions for the fire protection of structural steel, also referred as structural steel protection.

Looking first at fire stopping, Nullifire's broad range of products are in place to offer smart protection in these specific areas.

One example is Nullifire FF 197, which can be used to ensure fire doors are compliant. A fire-rated polyurethane foam from, FF197 is used to seal door frames, window frames and linear gaps throughout the fire rated areas of a building.

Extensively tested, it is capable of bridging gaps of up to 35mm and offers up to four hours' fire resistance. The foam is also tinted pink, for easy identification.

The other area of Nullifire's work is in intumescent coatings.

If a structural steel building gets hot, the resulting collapse of a building can be catastrophic. However, by applying Nullifire intumescent coatings on structural steel, the metal is protected from reaching structural failing temperatures, with the coating able to provide stability for up to 120 minutes.

This buys vital time for the emergency services to evacuate people and control the flames.

Nullifire's intumescent coatings have been exhaustively tested both in-house within our own laboratories, as well as to national and international standards in independent test houses across the globe.

They also feature optifire+ a unique pigment that is impossible to manipulate, offering a guaranteed source of quality to deliver new levels of assurance to designers, main contractors and specifiers.

Achieving the best outcome

For more than 40 years, Nullifire – previously called Firetherm in the UK – has been a market leader in intumescent and fire stopping solutions and stands at the forefront of smart passive fire protection.

We understand the need to have confidence in the fire protection installed in buildings and our service is designed to help specifiers navigate the increasing demands from building regulations for effective fire strategies across commercial and residential environments.

Part of the Construction Products Group portfolio of brands, Nullifire's team of technical experts offer years of experience to support with the specification and installation of passive fire protection products and advise on Building Regulations.

The service is backed by full specifier and contractor training programmes.

In short, everything is focused on providing what our customers need at every stage of their project – smart protection. ■

Mechanical ventilation's role in improving indoor air quality

Words by Paul Williams, Domus Ventilation Product Manager

Ventilation has become a key concern in our buildings. Ventilation has progressed from the primary concerns around condensation and mould prevention; to reducing over heating in the more air tight new homes we began to build in response to the Code for Sustainable Homes; through to addressing the issue of harmful indoor air pollution. Most recently, ventilation is being talked about in the light of reducing virus transmission, elevating the subject to something that the everyday person now discusses and is aware of.

Ventilation and Coronavirus

Coronavirus, which causes the COVID-19 disease, is primarily spread in indoor environments by people breathing in infected droplets and smaller 'aerosol' particles in the air that have been exhaled from the nose and mouth of an infected person.

Whilst masks help to limit the spread of these droplets, good ventilation is essential to disperse them.

A short film released by the Department of Health and Social Care in November 2020, shows how ventilation can reduce the risk of infection from Coronavirus by over 70%, as fresh air dilutes the particles. The video focuses on natural ventilation through opening windows, but also acknowledges the role mechanical ventilation systems have to play when used correctly and regularly.

The benefits of mechanical ventilation in reducing transmission

Whilst extract fans in bathrooms and kitchens provide a basic level of ventilation and are low in cost, they are only one step above opening a window. Using these fans, replacement fresh air is provided via background ventilators and normal air leakage.

For a more effective solution, that ensures fresh air reaches all rooms in a home and pollutants are directly extracted without losing costly heat from the property, whole house mechanical ventilation solutions can't be beaten, especially if you opt for a mechanical ventilation with heat recovery (MVHR) system.

MVHR combine supply and extract ventilation in one system. They work on the principle of extracting and re-

using waste heat from 'wet rooms' (kitchens, bathrooms, utility spaces). They efficiently pre-warm the fresh air drawn into the building with waste stale air using a heat exchanger. The filtered, pre-warmed air is then distributed around the home, effectively meeting part of the heating load in energy efficient dwellings. Domus Ventilation's new HRXE-HERA™ and HRXE-AURA™ MVHR units feature advanced heat exchange proficiency enabling up to 95% of waste heat to be recovered. They come with 100% thermal (summer) bypass which automatically activates when the air temperature reaches a pre-set level, allowing in cooler, fresh, filtered air without warming it through the heat exchanger.

MVHR systems provide effective ventilation, are energy efficient, extremely effective at reducing the risk of virus transmission, condensation and cold air draughts and, with their built-in air filters, are particularly useful in more polluted urban areas.

A lower cost, easier to install alternative to MVHR, mechanical extract ventilation (MEV) systems are also available. These actively extract air from wet rooms via ducting to a central ventilation unit which exhausts to the atmosphere. The systems are typically two speed, providing low speed continuous trickle ventilation and high-speed boost flow. Replacement fresh air is drawn into the property via background ventilators located in the habitable rooms and through air leakage.

Both types of system have been recognised by the World Health Organisation (WHO) as providing a line of defence against the spread of coronavirus. Because of the nature of these systems, which require extensive ducting, they are mostly suited to new build properties.

Lest we forget: air pollution

Ventilation in our homes has never been more important, but it would be a mistake to focus solely on coronavirus as the only threat to our health. We have been in the midst of a health crisis for some time, caused by pollution in the air we breathe. According to NHS England, 30% of preventable deaths in England are due to non-communicable diseases specifically attributed to air pollution. Particulate matter, notably PM2.5 and NOx, are the biggest threats here. This has been sadly brought to the fore by the recent recognition of air pollution as a cause of a person's death for the very first time in the UK, and possibly the world.

However, much of the focus on air pollution has been on polluted external air, whereas our exposure to air pollution mostly happens indoors, where we typically spend 90% of our time; with coronavirus lockdown periods, this figure has increased, along with the risk to our health.

For reducing indoor air pollutants, experts agree that both source removal and ventilation are key.

Indoor air pollution sources are widespread and vary dramatically from house to house. Sources include cooking, cleaning, fires, candles and even building and decorating materials. Outdoor air pollution is another source and features some of the more lethal types of pollution including nitrogen oxides, which are tiny particles that can easily enter our homes around closed doors.

For reducing indoor air pollutants, experts agree that both source removal and ventilation are key.

We have already looked at how whole house mechanical ventilation systems work and how effective they are in distributing fresh air throughout the home. But in more polluted areas, such as cities, bringing air into the home also brings in dangerous pollutants, especially if the property is located near a busy road. In these instances, ventilation has to be combined with filtration. The Domus Ventilation NOX-FILT, for example, works on the supply leg of the ducting system of a mechanical ventilation system and prevents up to 99.5% of NO^2 pollution from entering a home. There are two units in the range with the second one having the added benefit of a PM2.5 pre-filter.

Whilst the unexpectedly hot spring and summer months of 2020 saw external air pollution drop dramatically as we lived through the first coronavirus lockdown, sadly this has not been repeated in the second nationwide lockdown this winter. With even more time spent indoors out of the bad weather, not only have we sadly seen a rise in COVID-19 infections, but also air pollution. This has come from the large numbers of people working from home, who are using their gas boilers – a major source of local pollution – during the day, when normally they would be in their workplace and the heating at home would be off. At the same time, many workplaces will continue to be heated for those staff who are in. NOx emissions from cars are unlikely to drop much as, although fewer people are going to the workplace, many are using cars when previously they would have taken public transport.

The years ahead

No one is pretending that 2021 is going to be a good year, but there is light on the horizon for sure. We are witnessing one of the biggest vaccination programmes in the history of the world in a bid to fight Coronavirus. We are also seeing governments across the world taking air pollution seriously and putting measures in place to reduce it. And we are seeing ventilation being recognised as a valuable and relatively low cost means of improving our indoor environment and our health. ■

A guide to installing thermostatic mixing valves: what, why and how

Words by Richard Bateman, Product Marketing Manager, RWC UK

Thermostatic mixing valves (TMVs) are a fundamental part of any hot water system. Designed with safety in mind, they are used to blend hot and cold water to a temperature which mitigates the risk of scalding, while allowing hot water systems to run at high enough temperatures to prevent Legionella bacteria from breeding.

TMVs are regulated by law. In 2010 it became a legal requirement to install TMVs in all commercial and domestic new builds, as well as properties undergoing a 'change of use' after 2012. TMVs are also regulated by the Thermostatic Mixing Valve Manufacturers' Recommended Code of Practice for Safe Water Temperatures, the NHS Estates Guidance Note for Safe Hot Water and the Health and Safety Executive (HSE).

Understanding the application

The necessity of delivering water at safe temperatures and fighting off harmful Legionella bacteria means it is vital that the right TMV is used for the job, and each application must be considered carefully.

TMV2 certified valves should be used in domestic, commercial and public buildings, as outlined in Part G of the Building Regulations and the TMV2 Scheme. Under this scheme, TMVs must maintain a safe and stable temperature of under 48°C at all times and quickly shut off in the event of hot or cold-water failure.

TMV2 certified valves must also be tested annually in commercial applications, to maintain the certification. In these settings, a single TMV can be used to serve multiple outlets, ideal for a group of basins in public toilets or showers in a gym.

In healthcare settings, on the other hand, a risk assessment should be carried out and TMV3 certified valves must be specified accordingly. Crucially, a valve must be installed to every water outlet identified in the risk assessment.

The Health Services Information Sheet No 6, published by the Health and Safety Executive (HSE), provides useful insight into risk factors and "at risk" groups. These valves must comply with the Care Standards Act 2000, which states that any healthcare building housing vulnerable people must have TMVs compliant with the NHS Model Engineering Specification D08.

There are several types of TMVs to choose from, but the key is understanding the application first. At RWC we offer a variety of TMVs from our Reliance Valves brand including Heatguard Dual and Ausimix, suitable for different types of application with the relevant TMV2 or TMV3 approvals.

Why it pays to go with the flow

When selecting the TMV required for a specific application, it is essential that it performs at the flow rate required for that application. For example, although TMV2 allows for 'group mixing' to multiple outlets, the valve must be sized accordingly to meet the demand. An undersized valve may result in insufficient hot water reaching the required outlets.

Installers should refer to TMV product data sheets, which contain information and graphs on flow rates. If in doubt, consult the manufacturer. RWC's technical team, for example, is happy to help with understanding the application, legislation and flow rate requirements.

If a thermostatic mixing valve is not installed correctly, it will fail to regulate the temperature of the water effectively.

Preparation before installing the TMV

Preparing and installing the pipework should be done before fitting the TMV. For a group mix valve, ensuring that the TMV is as close to the first outlet as possible can prevent the risk of a stagnation point, which can lead to Legionella bacteria breeding in the system. For TMV3 installations, regulations stipulate that the valve must be within two metres of the tap.

For commercial and healthcare applications, the valve must be regularly maintained. We would always advise that the TMV is located in a maintenance hatch, or surface mounted, rather than being hidden out of reach inside cavity walls. If space is tight, Reliance Valves' Compact Ausimix Telescopic TMV is a great solution. With adjustable union connectors, its application is extremely flexible, especially in retrofit installations. It is also WRAS approved and certified to both TMV2 and TMV3.

Installing the valve – points to bear in mind

If a thermostatic mixing valve is not installed correctly, it will fail to regulate the temperature of the water effectively. This leads to ongoing maintenance and servicing to diagnose the issue and, in healthcare applications, the outlet will be put out of use, which can cause major disruption.

To avoid this, it is important that the hot and cold feeds are plumbed in the right way around and that the correct adaptors are put on the correct ports. Make sure that there are service valves either on the valve itself, or that they are plumbed in on the pipework leading up to the TMV. These simple but critical steps are vital to ensuring that the TMV operates efficiently and that the water supply can be isolated for testing and maintenance purposes.

Testing, maintaining and servicing the valve

After the valve has been installed, it needs to be tested, maintained and serviced at set intervals, as stipulated by the relevant scheme. Each application has its own temperature setting requirement – for example, in both schemes, an assisted bath must be set to 46°C (allowing for a 2°C fluctuation), whereas an unassisted bath would need to be set at 44°C.

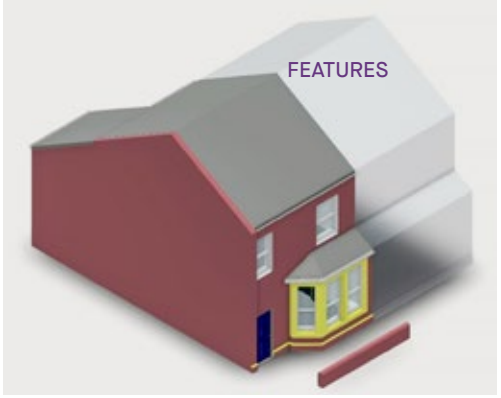
TMV2 valves should be checked by measuring the mixed water temperature, then isolating the cold water supply to the TMV. Once the supply is isolated the valve will begin to shut-off. This can happen instantly, however the requirement is that the outlet must not allow more than 120ml in a minute to satisfy the test requirement. Repeat this step for the hot water supply. If the water's temperature has changed by 2°C or more, or if the failsafe doesn't work, a full service and recommission will be required.

For TMV3 valves, the original installer is required to check the valve still operates 6-8 weeks after installation, with test frequency set at six-month intervals thereafter. If the valve fails within the initial period, the installer must rectify the issue and re-test the valve, then return again in six weeks' time.

Keep a checklist of every TMV that you are installing, the temperature that it has been set to and record that the failsafe function has been tested and is working correctly. Copies of these records can be left with the building owner/landlord, helping to ensure that future testing and maintenance is done under the same temperature parameters.

Safer water saves lives

Scalding is a major hazard, and thermostatic mixing valves are designed to prevent this from happening, but they can only do so if they are fitted and maintained correctly. Whether the application is domestic, commercial or in a healthcare setting, using and installing TMVs in the right way is vital to ensuring a safe and uninterrupted supply of water. ■



There's no BIM like home Part 12

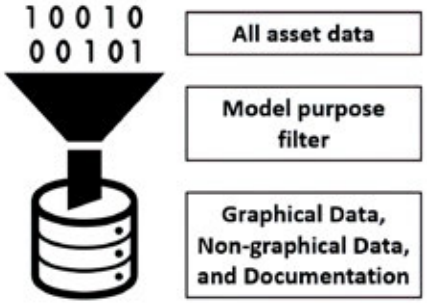
Words by Dan Rossiter BSC (Hons) MCIAT, Chartered Architectural Technologist

AT Journal continues its exclusive access to serialise Dan's blog on how he used BIM to produce an information model of his home.

After completing another plain language question last week when I considered what components should be excluded from my model when I create my COBie. This week, before properly considering two aspects:
1. Where best to store and manage the data; and
2. What is missing.

By doing this, I can clearly define the data gap that will allow me to complete my information model; surprisingly, I am a lot closer than I had thought.

Where best to store and manage the data?
Now it is worth pointing out that I have already put a lot of consideration into what attribute data I want to capture. I did so by defining my model purposes, which led to the definition of my data requirements. Which helped filter down the information I want to capture.



This information will be stored in a number of locations. The files themselves will be held on my Google drive while some information will also be transferred into Chimni. To exchange this information out of my information model into Chimni, COBie will be my method of choice.

Now through this process I am generating three kinds of container (files holding data): graphical data (2D & 3D models), non-graphical data (schedules and COBie), and documentation (reports and drawings). When I need to amend this information however it will almost be exclusively through the graphical data. There are two main reasons for this:
1. Most of my non-graphical data and documentation are originated from my graphical model; and
2. Documentation are created in a locked format (such as PDF) making their management difficult, while non-graphical data are either used as reference (such as schedules), or for the transfer of information between applications (COBie).

What is missing?
So what attribute data am I missing? Well, what attribute data did I ask for? Looking back at my data requirements and what is written in my employer's information requirements (EIR) I asked for sufficient attribute data to comply with BS1192-4 (COBie), and a number of additional properties to suit my model purposes. So let's see what we have already successfully managed to capture.

Contact
Nativity there isn't sufficient support within Revit for 'contacts'. Therefore, not much of information I require is being exchanged. Currently the following fields require attention:
Category: *remains as 'n/a';*
Phone: *remains as 'n/a';*
OrganisationCode: *remains as 'n/a'; and*
Street, PostalBox, Town, StateRegion, PostalCode, and Country: *remains as 'n/a'.*
From a contact point of view, I need to investigate the best way to manage this information either through a plug-in, or through an external database. – **Score: 10/19 = 52%**

Facility
By completing the 'project information' settings within Revit and the IFC exporter plug-in, the majority of information I require is being exchanged. Currently the following fields require attention:
SiteName: *Cannot rename the site system family in Revit to comply with BS8541-1;*
CurrencyUnit: *remains as 'n/a';*
AreaMeasurements: *remains as 'n/a';*

Description: *defaults to 'BuildingName';*
ProjectDescription: *defaults to 'ProjectName'; and*
SiteDescription: *defaults to 'SiteName'.*
From a facility point of view I need to investigate why the description fields are defaulting to the '___Name' properties, and look into a plug-in that will allow me to rename system families, as well as how to capture the house's EPC value – **Score: 16/22 = 68%**

Floor
By completing the properties associated to my 'Levels' within Revit, the majority of information I require is being exchanged. Currently the following fields require attention.
Height: *remains as 'n/a'.*
From a floor point of view, I need to investigate what is the best property to include to exchange floor height information. – **Score: 9/10 = 90%**

Space
By completing the properties associated to 'Rooms' (or Spaces) within Revit, almost all of information I require is being exchanged. Currently no fields require attention, but I do need to map an occupancy attribute to each space. – **Score: 13/13 = 100%**

Zone
Within my architectural model I cannot attribute 'rooms' to zones; but I can with spaces. So, within my mechanical model I did just that and all of the information I require has been exchanged. – **Score: 13/13 = 100%**

Type
I have already done a lot of work formatting my object types in previous posts, so thankfully all of information I require is being exchanged. Currently no fields require attention, but I do need to populate this data into most of my objects. – **Score: 35/35 = 100%**

Component
I have also already done a lot of work formatting my components in previous posts, so thankfully almost all of information I require is being exchanged. Currently no fields require attention, however the description issue is persisting. – **Score: 17/17 = 100%**

Object	Type	Materials	Properties	Quantities
Type	IfcBuildingElementProxy			
Ifc Label	#247140			
Name	BHH_Furniture_Cupboard:Default:4954			
Description				
GUID	3S3_zS1B95Ae7kD4D2gyUu			

System
While I do have a number of systems within my house, Revit will only export systems if it forms a closed loop (i.e. pipework between my radiators). As I cannot access beneath the floor I have opted not to model on conjecture and have excluded my pipework, as such no systems will be included unless I can find a way to resolve this. – **Score: 9/9 = 100%**

Assembly
We have also already done a lot of work formatting my assemblies in previous posts, so thankfully almost all of information I require is being exchanged. Currently no fields require attention, but I do need to capture a few additional assemblies such as my kitchen cabinets & worktops. – **Score: 11/11 = 100%**

Connection and issue
Connection and issue are an optional tabs mostly due to the fact that may of the connecting elements (such as pipework) are hidden from view and thus not being modelled. Also, from an issue point of view the products have already been selected so theses will not be recorded either. – **Score: n/a**

Spare, resource, job and impact
These tabs are not related to additional data attributed to my objects but to the operation of those objects, for example my Boiler documentation will recommend maintenance (job) that need to be undertaken and by whom (resource). If I inputted this information onto my objects directly they would appear in the attribute tab, there I will need to investigate a way to manage this information through an external database. – **Score: n/a**

Document
Similar to the tabs referenced above, Revit is not capable at collecting information about related documents. I do have a number of documents I want to capture (such as my property condition report) so I will need to find a way to manage this data through an external database too. – **Score: n/a**

Attribute
Thankfully almost all of information I required around my attributes is being exchanged including the additional attributes I have requested when I outlined my data requirements. Currently the following fields require attention:
Unit: *remains as 'n/a'; and*
AllowedValues: *remains as 'n/a'.*
However due to Revit's lack of enumerated value (pick list) support, and poor support of attribute units. – **Score: 11/13 = 84%**

Coordinate
Finally, there appear to be no issues relating to coordinate information as all the information I require is being exchanged. Currently no fields require attention however further rigour may be needed as this tab is more difficult to validate. – **Score: 15/15 = 100%**

So, after considering the attributes I require I am currently exporting 146 of the 164 attributes (including the optional attributes) to comply with BS1192-4, in addition to a number of additional attributes I want to satisfy my data requirements. If I populate all of my objects following my currently methodology that results in an average compliance score of 89%. Had my COBie gone to university this would equate to a first!

Fantastic, this exercise has helped show where I need to focus my efforts while I also ensure that the right data has been populated into my objects. PLQ2.5 has been successfully scoped out!

Now that I know where the issues lie, it's time to explore how to resolve outstanding attributes as well as the best way to manage contact & document information which cannot be recorded within my graphical model. Perhaps I need some kind of external database... ■

To be continued in the winter issue.
@DRossiter87

What do design professionals need to know about?

U-value calculation conventions

Words by Rob Firman, Technical and Specification Manager, Polyfoam XPS

BRE Report (BR) 443 *Conventions for U-value Calculations* is a document produced by the Building Research Establishment in the UK. As its title suggests, the report details best practice that should be followed by anybody carrying out U-value calculations for building elements.

Any design professional performing their own U-value calculations should already be familiar with BR 443 and be applying its conventions.

If you obtain calculations elsewhere, however, such as from a consultant or an insulation manufacturer, what do you need to know about the document?

What type of document is BR 443?

It is not a European Standard, like the ones that detail actual calculation methods for thermal transmittance. Nor is it a British Standard or code of practice.

Nevertheless, BR 443 carries weight in UK construction. It is a widely used and referenced document, recognised as essential to providing accurate U-value calculations.

What is in BR 443?

Another thing that BR 443 is not is an explanation of calculation procedures. The document does not describe how to do U-value calculations. Instead, it gives dimensional and performance data about common UK construction materials and methods.

Using BR 443, people who carry out U-value calculations can represent those materials and construction methods consistently, ensuring the industry generally benefits from accurate calculations.

BR 443 contains a wealth of supporting guidance about applying the data, meaning users of calculation software can make informed decisions about inputs into calculation software.

There are also checklists for common building elements covering different factors that need to be taken into account when calculating a U-value for that element.

What is the current version of BR 443?

BR 443:2019 is the current edition. It was published in early 2021, replacing the 2006 edition. The 2019 document is approximately double in length compared to its predecessor, providing more useful information for readers and significantly expanding some sections (such as section 11 about windows and glazed elements).

A small amount of previous guidance has been removed but, for the most part, the data provided for use in calculations have remained the same. The biggest difference is in the quantity of supporting information.

Traditionally, BR 443 was free to download, but the 2019 edition has to be paid for. As the 2006 edition is still available online, anyone searching for the document should satisfy themselves as to which version they have accessed.

Do design professionals need to know BR 443 in depth?

Technically, no. The main thing is to be satisfied that whoever is providing calculations for your projects knows BR 443 and is working to its conventions. There are some reasons why having an understanding of its contents could be beneficial, however.

Awareness of common material data, or factors that impact on the thermal performance of building elements, could help to inform design decisions or material specification choices. By factoring that awareness into projects at an earlier stage, it could make it more likely that design intent is realised later on.

By contrast, late design and specification changes to compensate for different thermal properties can lead to compromises being made.

Another reason is that when receiving calculations from a third party, such as a consultant or product manufacturer, it's possible to read those calculations, understand the data that has been used, and ask any questions about the correct representation of your design.

Trust that the third party is working to current conventions is important, but being satisfied that you have communicated your design correctly and that it will help to achieve the goals of the project is equally critical.

Polyfoam XPS provides extruded polystyrene solutions for ground floor and flat roof build-ups. Visit polyfoamxps.co.uk for technical advice and U-value calculations that apply the conventions of BR 443, or to subscribe to our monthly newsletter, *The Build-Up*. ■

With health care systems at breaking point, it is time to re-think the relationship between our health and our homes

Words by Lee McCormack, Chief Executive, MyGlobalHome

COVID-19 has caused devastating human loss and pushed healthcare systems to breaking point, with hospitals everywhere struggling to temper the swell of sick people entering their doors.

But the fact is, the NHS was struggling with capacity and resource issues well before Coronavirus took hold, and this will be the case long after things settle into a new normal. The World Health Organisation (WHO) states that, across Europe, 4.5M people are in nursing and elderly home beds – equivalent to an estimated 19.7M beds globally. As life expectancy grows, alongside pressure on healthcare facilities, patients will be increasingly invisible to healthcare professionals outside of healthcare environments in between appointments.

If we could make it easier for people to proactively manage their own health from the comfort of their home, this would go a long way in addressing this pain point. The good news is that we are on our way there. One of the positives to come from the COVID-19 pandemic is the realisation that many medical concerns can be identified – and even resolved – away from doctors' surgeries, leading to growing confidence in mobile health applications. In fact, recent statistics which show only 20% of future medical appointments are expected to take place in person with a GP, are indicative of a growing appetite for telemedicine solutions, which is likely to remain even after the pandemic has subsided.

Until now, gaps in data, adherence, and technical barriers have slowed down the growth of telemedicine. But the home setting – and smart technology specifically – offers a unique opportunity to complement existing solutions and enhance care in the community by filling in these gaps.

I am not talking about siloed smart home solutions here. After all, digital health devices themselves are nothing new. I am talking about building digital health ecosystems into homes that are firmly orientated around the occupant. Ecosystems that have the capacity to map important, but largely invisible environmental factors that impact patient welfare, including air quality, allergens, pollutants, particulates, bacteria, water leaks, humidity and energy usage, with lifestyle trends and activity classification.

Such a platform could facilitate connections to approved medical devices to provide participants, care givers and clinicians with broader, deeper and actionable insights in physical and mental care. The system could then leverage this data to create smarter algorithms and offer greater patient insight by offering access to a common set of content, applications, analytics, datasets and other tools – ultimately responding to peoples' health and wellbeing needs as they evolve.

GP involvement would be encouraged from the outset, with the platform providing practical analysis of each participant's health in the context of both environment and lifestyle to provide actionable insights. As this could all be viewed virtually, occupants would be spared the trouble of making physical journeys, freeing up space in GP surgeries.

Convenient access to accurate patient data would open the door to early diagnosis. This is a win-win for both patients and hospitals, by encouraging the shift away from simply treating illnesses, to encouraging general good health from the off, and intervening early when symptoms emerge.

Digital technologies are already widely accepted to benefit patient outcomes and drive efficiencies in healthcare systems and patient management. So just think what could be achieved if we leveraged this power in an interconnected digital framework that can be easily understood and managed from people's own residences?

This kind of technology would not only improve experiences and outcomes for patients, reduce reliance on hospital resources, and ease the workload of overworked healthcare staff – it could have the power to truly democratise healthcare access for people, leading to transformational change within our healthcare systems and society generally.

The Coronavirus pandemic has brought with it immense challenges. But it is also opened the door to encouraging real, positive change in the healthcare arena. We have only really scratched the service when it comes to how telemedicine and mobile health devices could revolutionise the way we look after ourselves and each other. Now it is time to think about how the very homes we live in could support that ambition and purpose as well. ■

Permitted development: The end of the high street or a blessing in disguise?

Words by Kevin Crawford MCIAT, Chartered Architectural Technologist

Ever since the advent of internet shopping, there have been those who have been predicting the end of high street shopping in towns and city centres. This is nothing new, these tales have been around ever since the introduction of edge of town and out of town shopping centres combined with the increase in car ownership and personal mobility.

One thing that has been consistent during these times is the planning legislation that has maintained a level of oversight with the necessary checks and balances to ensure that sufficient infrastructure and resources were in place to support the creation of places and communities that benefit society as a whole. With the new increased scope of prior approval and certain permitted development rights which come into force on 1 August 2021, some of the checks and balances will be eroded if not removed completely.

On 31 March 2021[1], new permitted development rights were introduced in England to allow change of use from commercial, business and service uses (Class E) to residential use (Class C3) in certain circumstances, without requiring planning permission. The intention of Government is to give new life to buildings left vacant and as a result help to deliver more homes and to revitalise England's cherished high streets and town centres. Regulations affecting these changes came into force on 21 April 2021, with applications for prior approval being the remaining checks and balances in place, allowed to be submitted from 1 August 2021.

For example, commercial buildings need to have been vacant for three months before they can be converted to housing through the new PD rights, with certain limits on size also being applicable.

Most Chartered Architectural Technologists will be familiar with PD rights, although not everyone will be completely familiar with the prior approval process, where there are only limited checks carried out by the planning authority. With this is mind, any project that is being considered under PD rights will be subjected to some level of scrutiny by the planning authority under the new prior approval process and have to satisfy the planning authority as to the impact of that change of use on the character or sustainability of the area, including, but not limited to, the following:

- Transport impacts of the development.
- Contamination risks in relation to the building.
- Flooding risks in relation to the building.
- Impacts of noise from commercial premises on the intended occupiers of the development.
- The impact on the local provision of the type of services lost, including:
  - the provision of adequate natural light in all habitable rooms of the dwelling houses;
  - the impact on intended occupiers of the development of the introduction of residential use in an area the authority considers to be important for general or heavy industry, waste management, storage and distribution, or a mix of such uses where the development involves the loss of services provided by a registered nursery or health centre maintained under section 2 or 3 of the National Health Service Act 2006.

In addition, in the case of conversion to residential, applicants will need to submit floor plans showing the total floor space in square metres of each dwellinghouse. This will be subject to space standards requirements.

As long as all of the correct information and documents are submitted to the local planning department, the prior approval process should be a great deal simpler than going through a planning application. Prior approval is designed to be much less onerous in its requirements as it is reserved for permitted developments.

There are also some notable exclusions to PD rights, which will apply in conservation areas but not in national parks or areas of outstanding natural beauty, the Broads, areas specified by the Secretary of State for the purposes of section 41(3) of the Wildlife and Countryside Act 1981, and world heritage sites.

The usual exclusions to PD rights would also continue to apply for sites of special scientific interest, listed buildings and land within their curtilage; sites that are or contain scheduled monuments, safety hazard areas, military explosives storage areas and sites subject to an agricultural tenancy.

The good bits:

- For the first time, notices will need to be served on any adjoining owner or occupier and, where the proposed development relates to part of a building, on any owner or occupier of the other part or parts of the building.
- There is no exemption from the Community Infrastructure Levy (CIL), although the in-use buildings exemption will apply if at least part of the building has been occupied for a use which is lawful for at least six months continuously in the previous three years.
- The scale of development that can fall within a PD rights project has been capped at 1,500 sq.m
- Any works that 'materially changes' the external appearance of a building will still require planning permission, although this will potentially be subjective and a point of debate during any discussions with clients and developers and to what constitutes a 'material change'

The bad bits:

- There is no mitigation as to matters that are not the subject of the prior approval process, so PD residential development will be free from affordable housing and other social infrastructure commitments (e.g., contributions to the cost of education facilities).
- Residential development will occur in potentially unsustainable locations.
- The new PD rights will allow commercial frontages in high streets to be converted to residential use in a way which may adversely affect the traditional function of town centres (although this will be subject to the need for separate planning permission for the external treatment of the building).
- The new PD rights will greatly limit the role of the local planning authority in determining what are appropriate uses for a particular area.

The intention of Government is to give new life to buildings left vacant and as a result help to deliver more homes and to revitalise England's cherished high streets and town centres.

There will still be room for uncertainty, potentially leading to unintended consequences particularly around the vacancy requirement. There are also a number of questions that still remain unanswered.

- Will this create new housing neighbourhoods and places where families want to live, or will it create ghettos?
- Where does the affordable housing come from?
- Is there going to be a workable infrastructure in place? sufficient schools, doctor's surgeries etc.?

Whilst the extension of PD rights may seem to be the answer to the housing shortage, one thing that is for sure, redevelopment and conversion of buildings in our towns and high streets will bring people back into high streets and town centres, but will it create communities? The effects and ramifications of these changes are going to be around for a long time, and it would be advisable to consider the spaces and their use holistically.

[1]. https://www.gov.uk/government/news/new-freedoms-to-support-high-streets-and-fast-track-delivery-of-schools-and-hospitals-across-england-introduced-today

SocEnv Soils and Stones Report: Sustaining our future by influencing change in the UK and beyond

The Society for the Environment (SocEnv) are delighted to announce the launch of their new report: *'Soils and Stones: Sustaining Our Future By Influencing Change in the UK and Beyond'*.

The report, supported by CIAT, draws together the collective expertise of environmental professionals working with soils and stones, from across sectors including construction, forestry, engineering and agricultural management.

The culmination of sixteen months of tireless work by a dedicated task group, made up mostly of Chartered Environmentalists and facilitated by SocEnv, the report both highlights existing cross-sector good practice, as well as setting out key asks for ensuring this good practice is more widely adopted.

Welcoming the publication of the report, Dr Emma Wilcox, Chief Executive of SocEnv, said:

"Soil is hugely important but also neglected and degraded, while stones are too often considered as more of a waste than a valuable resource or material.

To sustain our future, urgent action is needed to ensure the protection of these natural resources, and this means we must improve understanding and practices across sectors.

It has been fantastic to see members of the task group collaborate so well during the last sixteen months, to produce a report packed full of expert knowledge and guidance.

We hope the report is read far and wide and look forward now to working with our partners to ensure delivery of the report's key asks."

An extract from the Report

Climate Change and Soil Water Dynamics

Challenges and Boundaries – Linking to UK Policy and Legislation

Since its formation, the earth's climate has been in constant flux. These changes have typically occurred over hundreds or thousands of years, at rates slow enough to allow life on earth time to evolve or adapt to a changing environment. However, due to human activity vast amounts of greenhouse gases, such as carbon dioxide and methane, have been released into the earth's atmosphere since the Industrial Revolution. This warming is accelerating, with changes now being recorded over decadal timescales (Parker 2007). This is resulting in atypical seasonal changes in weather patterns, punctuated by the increasingly intense extreme weather events, each having a direct impact on soil physical, chemical, and biological properties, including soil water dynamics, which affect water retention, drainage, wildfire events, pollution, erosion, and emissions. Visualisation of the many of the ways which the earth's soil and stones may be used to address climate change are explored in Netflix's "Kiss the Ground" documentary.

Globally, Agriculture, Forestry and Other Land Use activities are thought to account for around 23% of total net anthropogenic (originating from human activity) emissions of greenhouse gases (12.0 ± 2.9 GtCO2eq yr-1) between 2007 and 2016, rising to 21–37% when taking into account food production value chains (IPCC 2019). The implications of this are stark, with many areas of the world experiencing changes in water dynamics, ecosystem services and soil erosion (Shukla et al. 2019).

In the UK, this is manifested in the following ways:

- **Agricultural soils are becoming less fertile** and productive, adversely affecting their capacity to grow food for human consumption, though it has been already noted that this is disputed by farmers who rely on intense farming methods to maintain crop productivity.
- Long periods of drought are:
  - Creating water stress, affecting water supply for domestic, industrial and agricultural applications, often affecting regions of the UK, more often publicly visible through the adoption of hosepipe bans.
  - Adversely affecting the flora and fauna of natural ecosystems on land and aquatic species from heat stress and the drying out of riverbeds, drainage channels and other surface water features.
  - Drying out surface detritus, creating conditions for wildfires that can be started by human and natural activity such as lightning (Nolan et al. 2019; Vaughan 2019).
- **Flooding**: Sustained periods of rainfall leading to flood events, resulting in damage to property and agricultural land.
- **Storm events leading to infrastructure damage**, destabilising land and with sea level rises accelerating coastal erosion and estuarine floodplain damage

Globally, material extraction is expected to rise to 184 billion tonnes by 2050, adding 7 to 27 billion tonnes CO_2eq (de Wit et al. 2018; de Wit et al. 2019). Cement is made of materials including limestone, chalk, and silica sand, and alone contributes to about 8% of global emissions with 50% of this coming from process fossil fuel burning, providing greenhouse gas mitigation opportunities (Olivier et al 2016). In the UK, the effects of climate change on land and the effects of land usage on climate change are considered in terms of land use in both urban and rural development. This also includes industrial development, where legislation and permitting is interfaced with MMPs within the CL:AIRE DoWCoP guidance used in the preliminary site preparation stages.

Addressing challenges through evolving best practice

Linear economy options leave landfill or mainly ground reuse or recycling options for soil and stone wastes. To increase circularity, the options for reuse and recycling soil and stones must be implemented higher up the waste hierarchy in the design stages of land-use developments.

Although there is a need to address the rejection of waste materials for reuse, many reuse options are from experience often excluded by commercial specifications and engineering quality criteria.

In relation to the design aspects of urban development and the scale of the indirect supply chain impacts of soils and stones, process, transport and distribution emissions have been captured in a recent report by the Royal Academy of Engineering 'Sustainable Living Spaces'. Bristol University's ICE database and online tools are useful in quantifying embedded soil and stones emissions in the supply chain. Practical guidance is outlined in construction and logistics support systems, such as BREEAM. Multiple developments can be supported using Construction Consolidation Centres by reducing transport emissions and embedded emissions from product and materials that would normally be lost or damaged on site. Research on mineral-based construction materials is being carried out at the UCL Interdisciplinary Circular Economy Centre for Mineral-based Construction Materials.

About 26% of UK greenhouse gas emissions are from agriculture, waste management and 'other' (including forestry). In 2017, former Environment Secretary, Michael Gove, stated that the UK is only 30 to 40 years away from "the fundamental eradication of soil fertility", highlighting contradictory imperatives of policymakers, businesses focused on short-term returns, and long-term land-use planners. The state of the UK's arable soils illustrates this well, with the Minister warning "... no country can withstand the loss of its soil and fertility".

The decommissioning of oil, gas and waste management sites will become more prevalent in the future and will face the challenge of dealing with low-level fugitive methane emissions from ground sources. Soil design and practices to reduce the greenhouse gas potential of the methane are already understood and should be developed to provide long-term mitigation features (IPCC 2001; Spokas et al. 2015).

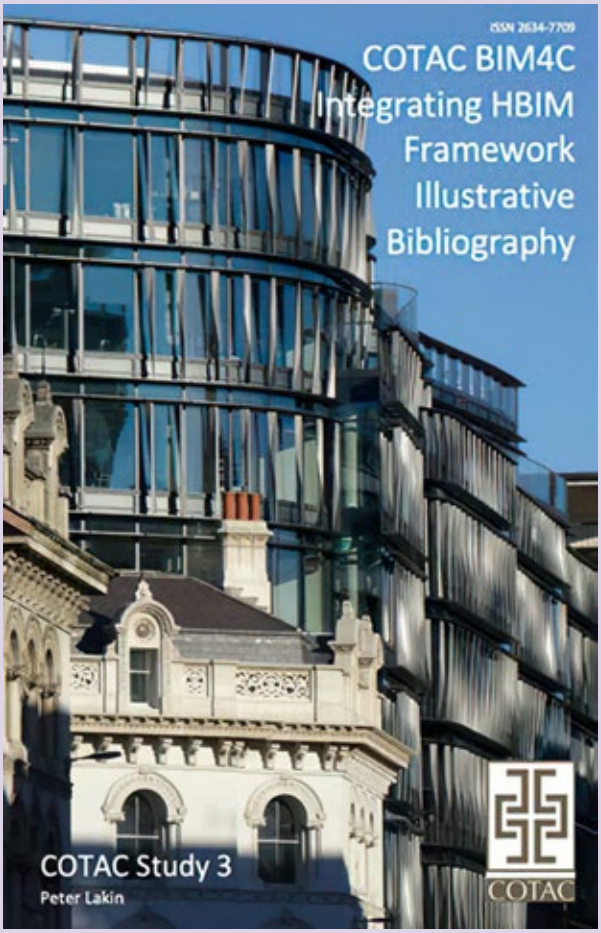
At a practical level, the land-use planning (master planning) needs be defined in terms of carbon emission intensity limits or intensity reduction within time-framed targets for all rural and urban developments or agricultural activities, at field or land plot level.

The full Report can be downloaded from https://socenv.org.uk/page/soilsandstones ■

COTAC Study 3

COTAC BIM4C Integrating HBIM Framework Report Illustrative Bibliography

(Revised Edition December 2020)



ISSN 2634-7709
Edited by Peter Lakin
COTAC, London Reformatted December 2020

COTAC enabled a *BIM4Conservation* (BIM4C) Group in 2015 with the remit of raising awareness and understanding of BIM within the conservation and heritage sector of the built environment, and to link with other BIM4 Communities in advancing knowledge and influencing understanding of conservation needs within the broader context of the BIM industry sector. In consequence, the *COTAC BIM4C Integrating HBIM Framework* was presented and published on the www.cotac.global website in two parts *(Part 1: Conservation Parameters and Part 2: Conservation Influences)* to offer some considerations that might be taken into account as the awareness of the particular needs of BIM4C gain ground. Through these developments it was hoped that an appreciation of the differences in approach required by conservation orientated projects against the developed new-build faced Historic Building Information Modelling approach will emerge.

The two main parts of the Study were supported by a draft Bibliography which, in the interim, has been considerable updated. This was undertaken as a desk-based exercise resulting in this new reformatted document with all related url's correct to 17 December 2020, and this new version supersedes that original issue.

Continuing COTAC's investigation as to how BIM might be impacting upon the existing built heritage, this newly revised Study 3 *COTAC BIM4C Integrating HBIM Framework Illustrative Bibliography* of web-searched findings is presented in three Parts:

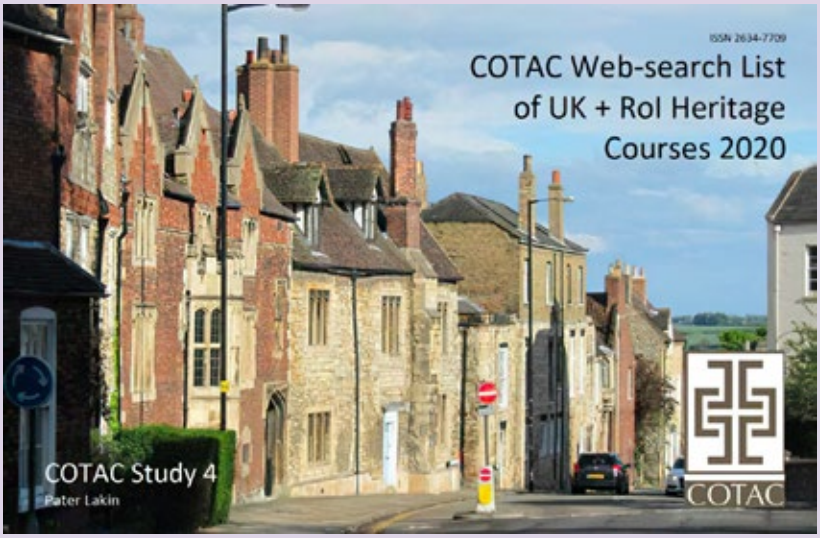
- Part 1: Organisations, Bodies, Industry and Practices Web Search Findings
- Part 2: Research Web Search Findings
- Part 3: Case Study Web Search Findings

Heavily referenced across the three categories, each entry is accompanied by its source url, all of which were correct to 17 December 2020. It replaces the earlier draft edition, dated 2016. ■

To access and download *"COTAC BIM4C Integrating HBIM Framework Report Illustrative Bibliography"* go to:
www.cotac.global > Menu > COTAC Studies > COTAC Study 3 > Click on the thumbnail front page to source the PDF.

COTAC Study 4

COTAC Web-search List of UK + RoI Heritage Courses 2020



ISSN 2634-7709

COTAC, London January 2021

Correct to 16 November 2020 the material offered in this Study has been directly sourced, as a desk exercise, from the on- line web-sites of numerous institutes' in the UK and Republic of Ireland that indicated their delivery of Heritage orientated courses. It is available as a downloadable pdf at http://cotac.global/COTACstudies/page-2/

The listed information is presented by University location, Award Level, Course Title, if the material is presented as a Module, and which organisation offers their accredited recognition, together with the reference url from where the information was obtained.

At a time when considerable uncertainty exists as to how higher education might be delivered in the future due to the 2020 Covid pandemic, this Study is also intended to provide a baseline against which any future changes might be measured and assessed.

Users of this Study may wish to be made aware of the more focused lists of Postgraduate, Undergraduate, Craft and Short Courses is maintained and offered under the www.cotac.global *'Conservation Course'* website Menu tab. Here, it is anticipated, COTAC will aim to present up-to-date information as and when that might be released by the various providers.

Listed by Award Level and by alphabetical Location, the Study content lists:

- Architectural Conservation Courses
- Courses offered with Architectural Conservation Modules (May be optional)
- Architectural Technology (Conservation not specified)
- Heritage Courses (Not necessarily Architectural) ■

To access and download *"COTAC Web-search List of UK + RoI Heritage Courses 2020"* go to:
www.cotac.global > Menu > COTAC Studies > COTAC Study 4 > Click on the thumbnail front page to source the PDF.

Twickenham Studio, London's world-renowned film studio transformed

Words by Hollaway Studio

This year has seen extensive restoration and refigurement of the historic two-acre site of Twickenham Studios, one of London's oldest surviving film studios. Combining the refurbishment and development of the existing onsite buildings with newly designed and built areas to cater for much-needed additional space.

Constructed in 1913 on the site of a former ice rink, Twickenham Studios was purpose built to be the largest film studio in the UK. Surviving bomb damage during two world wars, the studios have played host to countless cinematic classics including 'The Italian Job' (1969), three of the Beatles' films as well as more recent productions.

Like a stage set itself, the design concept was inspired by the process of design and construction within the film industry. Mindful of Twickenham Studios' vital history, Hollaway Studio, alongside The Creative District Improvement Company (TCDICo.), which has drawn up the scheme, emphasised respecting and restoring the existing building fabric, while weaving in new state of the art facilities.

Hollaway Studio's focus on the restoration and reconfiguration of the existing site has meant that much of it will remain as it is with visual improvements proposed through the careful enhancement of existing architectural features. This sustainable approach ensures less material and construction waste, causing minimal impact to the ongoing activities on-site. As well as external works, internal spaces will be refurbished to modern day high-spec standards. With sustainability imperative to the site a number of approaches have been taken including green and blue roofs across all new additions to the site, not only increasing biodiversity but also contributing to effective drainage.

Architectural and decorative features of the historic original elevation along St. Margaret's Road have been examined and manipulated to create a playful and expressive façade. In order to achieve this detailed effect, moulded panels filled with pigmented concrete have been proposed; the pigmentation allows for the new concrete façade to marry into the neighbouring existing Victorian ones, and the detailed casting system permits the construction of complex and detailed shapes and patterns. This is produced digitally, and fabricated with CNC-milled panels, which are used to cast the concrete either in-situ, or prefabricated off-site. These considered results pay homage to the stage set, providing the public a window into the site and the processes beyond, and allowing people to appreciate the remarkable part that Twickenham Studios have played in the British film industry.

Studio 1, while remaining much the same, will have new PV solar panels incorporated into its refurbishment that will feed into the sustainable energy use of the site. The proposed signage to introduce Stage 1 will reflect the historic signage that once inhabited the façade along St Margaret's Road. Users will then be transported through the sets of the ongoing productions and then further past the studios and into a new boutique cinema which will showcase the works produced in house.

The art department and refurbished post-production facilities will inhabit existing buildings extending into a lightweight roof extension at the rear of the two-acre site. These extensions have been designed so that they can be pre-fabricated and moved onto site with minimal interruption to the ongoing productions. This approach also means that materials and components will be maximised with minimal waste. These new proposals will look out onto the newly created external landscaped courtyard space that will be host to an airstream café and outdoor seating. ■

Do you have an interest in Architectural Technology and wish to be associated with CIAT and support the discipline?

If so, why not join as a 'CIAT affiliate'?

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- Opportunity to promote their affiliation with the Institute using the approved terminology of 'CIAT affiliate'.
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- Access to Region, Centre and aspirATion events.
- Access to knowledge, training and CPD via the AT Academy.
- AT Journal subscription.
- Informative updates related to Architectural Technology via Institute communications.
- Access to resources via MyCIAT website account.

What is the cost?

- £35 one off application fee
- £100 annual subscription UK and Republic of Ireland
- £85 annual subscription if based internationally

How to join?

Please email **membership@ciat.global** for an application pack.

CIAT

Architectural Technology research at Robert Gordon University

Words by Professot Richard Laing and Tahar Kouider MCIAT, Robert Gordon University

The Institute, as part of its Accreditation procedures, recognises educational establishments as Centres of Excellence for demonstrating a robust research culture, which has a direct and significant impact to the discipline of Architectural Technology. Not only do educational establishments prepare future professionals, they are also responsible for some of the innovation which is being adopted by industry.
The research institutes within our four Centres of Excellence are being highlighted in *AT Journal* this year and we continue this issue with Robert Gordon University.

Research within the Scott Sutherland School takes an applied and integrated approach, where projects, studies and activity extend across all disciplines, and engage with a wide range of external clients and end users. The School has tended towards undertaking research with external research partners, where these have included other Universities and Research Organisations, as well as partners from industry and government. Indeed, with regards to external funding for research, we have tended to find most success within applied studies, including those funded through Interreg North Sea Region and the EU Horizon and Framework programmes. This has tended to mean that connections between research, dissemination and applications are fairly seamless, and it has been heartening to see the influence on policy and practice.

Our research is also integrated across themes, in that whilst we are able to present compelling clusters of activity within the groupings of 'digital cities and society' and 'healthy housing', inclusion in and membership of these groups is open, and based on participation and collaboration. Within the discipline area of Architectural Technology, we have over the past few years witnessed a transformation in terms of access to and applied use of digital technologies. Whether this involves digital modelling of the built environment to support environmental analysis, recording of the built heritage within conservation studies, or the application of technology to digitally monitor the performance of buildings, it has been gratifying to see a migration of cutting-edge technology from the research domain into teaching and practice. Indeed, it is also true to say that the drive towards this migration came from both staff and students alike, and has enabled the School to develop an Architectural Technology discipline area where innovation and exploration are at the heart.

Important to the activity has been the support from external funders to explore subjects including sustainable (and smart) urban mobility, digital cultural heritage, improvement of energy performance in historic buildings and the design and fabrication of cutting-edge housing. All of these areas are of direct relevance to the discipline of Architectural Technology and help to ensure that our students are equipped to appreciate and understand the likely direction of our industry in the coming years.

Digital cities and society

Our work within the focus area of digital cities and society has developed through the completion of numerous commissions, concerning digital representations of the built environment. Early studies included studies concerning digital heritage, with a concentration on the use of such material to foster and support end user engagement. Utilising technology including both laser scanning and photogrammetry, the outcomes and methods have shown themselves to be readily transferable across different contexts and have increasingly found a place within teaching of built heritage conservation.

The group has undertaken studies concerning the development of digital models of towns and cities – including Aberdeen and numerous locations across Scotland – and has been able to explore and demonstrate how this can be applied in urban, infrastructure and mobility projects. Indeed, current work concerning urban mobility (funded across projects supported by Interreg and the EU) has benefitted from the application of digital data capture to record and represent the physical outcomes.

One aspect of the work which has developed in a clear direction is that of digital and visual asset management, where it has been fascinating to explore the use of digital twins within urban planning, design and building information modelling. This indicates that the now established expertise of the technologist with regards to digital modelling and simulation can naturally extend into later stages of the life cycle. Current work undertaken with the support of the Construction Scotland Innovation Centre is exploring the use of digital prototyping to support fabrication and is likewise primed to find a pervasive place within mainstream practice in the coming years.

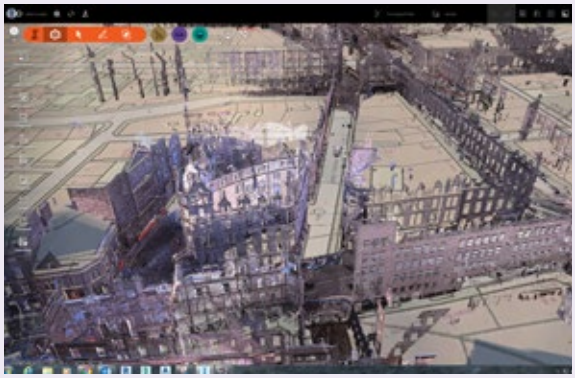
Healthy Housing

One of the longest established areas of research within the School has been that of housing design, and this has taken a number of distinct yet connected routes. Pioneering work undertaken during the 1990s in the field of affordable housing design and production led to ground-breaking research concerning low energy and sustainable housing. Finding clear and established space within both practice and teaching, the work was notable in that it challenged perceptions of housing materials, required changed behaviour from occupants, and had a fundamental impact on notions of cost, value and market supply and demand.

In recent years, that work has focussed on user and community engagement, and offers examples of participatory and co-design of housing. Whether the work has been undertaken with private clients or Housing Associations, the inclusive and creative approach to the development of design briefs and the housing which is finally constructed has in itself influenced the manner in which findings are transferred into practice, and the approaches which are suggested and encouraged within our own student community.

Utilising technology including both laser scanning and photogrammetry, the outcomes and methods have shown themselves to be readily transferable across different contexts...

It has often been shown that the UK has a large housing stock which was designed and constructed at times pre-dating the advent of low energy and sustainable design. An important strand of research within the healthy housing group has therefore concerned retro-fitting of environmentally appropriate solutions to energy performance. This has been applied within historically important architecture, as well as within a fascinating range of housing dating from throughout the 20th century and built using locally specific materials (including granite) or with non-traditional construction detailing. Again, the impact of this work on the quality of life for occupants has been significant and extremely positive. ■



Technology, politics, science: Can the world govern itself differently after the Coronavirus?

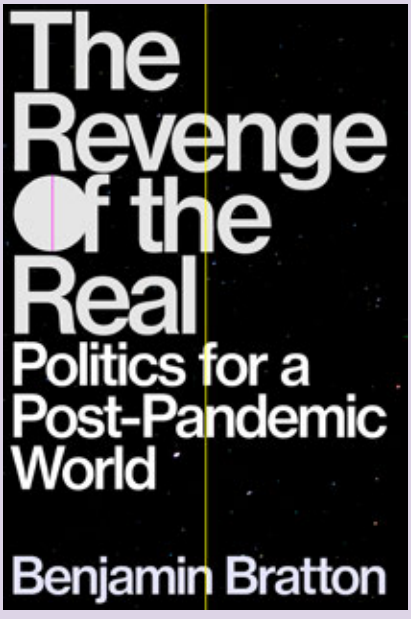
An exclusive extract from Benjamin Bratton's new book

COVID-19 exposed the pre-existing conditions of the current global crisis. Many Western states failed to protect their populations, while others were able to suppress the virus only with sweeping social restrictions. In contrast, many Asian countries were able to make much more precise interventions. Everywhere, lockdown transformed everyday life, introducing an epidemiological view of society based on sensing, modelling, and filtering. What lessons are to be learned?

The Revenge of the Real envisions a new positive biopolitics that recognises that governance is literally a matter of life and death. We are grappling with multiple interconnected dilemmas – climate change, pandemics, the tensions between the individual and society – all of which have to be addressed on a planetary scale. Even when separated, we are still enmeshed. Can the world govern itself differently? What models and philosophies are needed? Bratton argues that instead of thinking of biotechnologies as something imposed on society, we must see them as essential to a politics of infrastructure, knowledge, and direct intervention. In this way, we can build a society based on a new rationality of inclusion, care, and prevention.

Benjamin Bratton is a leading technology critic. His TED talk, *We Need to Talk About TED Talks*, has been seen over 500,000 times. Bratton is the author of the hugely influential *The Stack: On Software and Sovereignty.*

It is ten short essays, looking at how technology has changed in the quarantine world and the strange existence we are now living in. For instance, what happens in a city where everyone is wearing masks? How does this change our relationship to surveillance, and how will this impact politics? Ultimately, the revenge of the real is of the human and the social against the technocratic.



Here is an exclusive extract for ATJ:

The problem of over-individuation within the systems we use to model ourselves is compounded by the physical isolation each of us experiences in extended rhythms of lockdown. The situation has brought new cultural and interpersonal realities, many of them unfamiliar and uncomfortable, such as the tense choreography of social distancing and vocabularies of *touchlessness*. How, when each of us is forbidden to touch, can a renewed sense of our biopolitical entanglement emerge? It may come through a recognition that societal care is not only a personal, face-to-face and skin-to-skin experience, but something that also happens at a distance, through impersonal systems upon which each of us relies. These too are social relations. Technological mediation between us is a principle, not a secondary complication.

The solidarities that bind us cannot be reduced to direct experience; they are also found in how we build systems for those we never meet. In these ways as well, sensing and sensibility align.

There is then a link between the over-individuation of societal modelling and the insistence that direct and "unmediated" touch is not only preferable to remote engagement, but that it is authentic in ways that mediated social relations can never be. This is not only a misrecognition of what touch is, it is also a suppression of the sociality of relations we all hold with one another as part of a common biological and technological world. It is a belief that drags attention away from mutual entanglement on behalf of privatized communicative experiences. The problem then is not exactly the prioritisation of intimacy over remoteness, but rather the disqualification of *remote intimacy* that societal-scale health care demands. It leads to the negative suspicion of models themselves, on the grounds that their abstractions cannot represent the only things that supposedly really matter, which are phenomenological, not epidemiological. This is not just anti-intellectualism through the hyperinflation of aesthetics; it is a specific and expensive form of resistance to the implications of a biotechnical reality.

Therefore, in relation to the sensing layer more generally, positive biopolitics must collapse the dichotomisation of interpersonal and infrastructural modes of sensing. We must see them instead as mutually reinforcing. Cameroonian philosopher Achille Mbembe and I come to different but not necessarily irresolvable conclusions about how planetary-scale computation supports the project of reason and a viable planetarity. However, on what makes the experiential privatisation of subjectivity deeply problematic for that project, we are in clear agreement.

He writes:

What's striking . . . is the apparent shift from a politics of reason to a politics of experience . . . In the eyes of many, personal experience has become the new way of being at home in the world. It's like the bubble that holds the foam at a distance. Experience nowadays trumps reason . . . We're led to believe that sensibility, emotions, affect, sentiments and feelings are all the real stuff of subjecthood, and therefore, of radical agency. Paradoxically, in the paranoid tenor of our epoch, this is very much in tune with the dominant strictures of neoliberal individualism.

I would extend this by saying that a privatised subjectivity and the attendant hyper-interiorized individuation hinge on a commitment to the authenticity and efficacy of affect. This embraces the notion that a preferred personal narrativisation of the world can, and in fact should, take priority over the cold reality of the planet and its indifferent biochemistries. It is the "culture" in "culture war." It is not only part of the psychology of the pandemic, it characterises the rise of populism that, now holding onto power, has so mismanaged responses to the pandemic so fatally.

Jean-Luc Nancy, commenting on "touch and touchlessness," describes how all touch is ultimately and finally touch-less, that touchlessness is the basis of our intimacies. As we view a grid of hundreds of viewers in a videoconference, where voices and images of faces surely *touch* all of our ears and eyes, he reminds us how even the most intimate encounters are mediated by sights and sounds, machines, bodily fluids, membranes and prescribed behaviors.

Knowing what can and cannot be touched is form of embodied social intelligence. Prohibitions against certain kinds of touching, such as the "touching death" taboo against laying a hand on the corpse of a deceased loved one, for example, have their own obvious "biopolitical" logic in that they prioritise the prevention of disease transmission over the personal expression of grief. His most emphatic point is that we are touching and being touched constantly, and thus mediation is not a secondary condition of our embodiment, it is the condition of our embodiment.

Instead of thinking of touch as that which is *im*mediate – without mediation – we understand instead that even as one experience may have more visceral tactility than another, that touching is always to some degree *touching at a distance*, and across a distance that is not empty but full of mediation. The significance of this for the context of the pandemic is in locating the provision of medical care within the larger, discontiguous social apparatus of sensing. That is, the sensing layer is how the larger social body, in essence, touches itself and senses itself so that another exacting kind of touch, which is this provision of medical care, can be provided.

The models that the social sensing produces allow for a general calibration of touch and touchlessness as a matter of intimacy, but intimacy in the form of biopolitical selfcomposition. For example, among the most intimate technologies of touchlessness is the mask. It is an intervention not just onto the individual body but a collaborative technology that through filtration mediates the proxemic relationship between two or more of us. Because we are always touched by one another's exhales, the masks make the interrelation a matter of shared concern. As it prevents contact by the deliberate withdrawal of the space between us, and it is precisely for that reason a way that we care for one another. Put directly, the mask works not because we care – as filtration is indifferent to affective ethics – but rather we care because it works.

Knowing what can and cannot be touched is form of embodied social intelligence.

A larger transformation of our cities – another collective technology – is also unfolding according to the demands of "touchlessnes." Architects, urbanists and interaction designers are scrambling to reimagine the postpandemic city. While they do so, we are amazed at the bottom-up interface design that has transformed restaurants, markets and other public places. In order for them to remain open, they have reduced their programmatic operations into immunological, interfacial regimes of clean and unclean components, plexiglass perforations, and furniture *détourned* into micro-barricades.

The remaking of these sites in the image of the newly present contagion may be less about removing the question of touch from the equation than actually *reaffirming* it. It reintroduces touch directly and viscerally as a variable that had been there all along, but had been forgotten. This context of touch and mediation between bodies and persons in the fulfillment of social encounters had become invisible in conventions like handshakes, which today seem inappropriate. If before touch was not seen as something that needed to be so deliberately calibrated, that is no longer the case. The *touch-fulness* of these touchless encounters is now something of which we are excruciatingly aware, so we compose the skins and boundaries of the world with understandings we had thought lost. ■

Let us evolve our buildings from being passive structures to interactive and reactive systems

Words by Bernard Hornung, Head of Operations, Built Environment, Coltraco Ultrasonics

Today, and in fighting this awful virus, it has never been more pertinent to test room integrity for airtightness. A building that is not airtight cannot be properly mechanically ventilated. Now is the time to build tight, ventilate right.

Until the outbreak of this global pandemic there was plenty of frustration around the slow pace of technology adoption within the built environment. Whilst other industries had made good progress, teams of builders were struggling to meet minimum building performance standards. Inefficient processes left much room for improvement. New homes often fail to meet low-energy targets, and to satisfy residents with fundamental issues such as ease of use, summer comfort and energy costs. There is far too little Building Performance Evaluation (BPE) happening routinely on projects to close the performance gap.

How COVID-19 changed our building sector

The pandemic can be credited with pushing the built environment sector in the right direction. Many processes have changed and there is no need to go back to the way it was. The technological advances that would have happened over the next few decades, have now been achieved, due to the pandemic's dramatic acceleration of technology adoption.

Most buildings are tested for airtightness, air permeability and air leaks with outdated and intrusive technology, making tests difficult, time consuming and expensive. Yet it is critical to quickly locate and accurately quantify air leaks in rooms and buildings. There is now a unique solution from Coltraco Ultrasonics who have brought testing for airtightness, and air permeability into the 21st Century. Air leaks with a diameter as small as 0.5mm can now be detected and quickly located with the Portascanner® AIRTIGHT 520.

Buildings, airtightness and ventilation

In March 2020, the world as we knew it fundamentally and suddenly changed, however, innovation continued to evolve and thrive. There was an urgent requirement within the NHS to prevent infection spread in hospitals and contain the virus by maintaining negatively pressurised ICU Wards and ensuring their airtightness. UK Government put out a COVID-19 emergency response grant through InnovateUK for technology to help the NHS. In June 2020 Coltraco Ultrasonics was one of the winners. The grant was for adapting their already award-winning watertight integrity technology into technology suitable for room airtight testing. Like many businesses, Coltraco Ultrasonics was transformed by the pandemic. In just 8 months Coltraco Ultrasonics had successfully designed and manufactured 2 innovative solutions to help the NHS and healthcare settings with infection control and the building sector to ensure effective ventilation through airtightness.

Following from this need to contain the spread of airborne diseases, Coltraco Ultrasonics swiftly saw the demand for this leak detection technology to be re-designed for the built environment. Portascanner® AIRTIGHT 520 is a new solution to ensure that buildings are airtight so that people can be confident that they are returning to "safe buildings" and "safe working" by properly ventilating them. This is to ensure that all ventilation systems are operating effectively, and thereby enhance indoor air quality (IAQ) which has now become a poignant issue.

No alternative leak measuring technologies measure the leak size directly, but instead infer it from pressure differences of airflow measurements, which are assumed to be taken at constant temperature and pressure, something that in reality, is never the case. This means that alternative technologies have inaccuracies that may be minimised, but not eliminated entirely, by highly skilled operators using manual calculators.

For the first time, with minimal training, the user can locate a leak, quantify the leak site, calculate the air flow rate through it, and generate an air permeability value for the room. You can then take accurate remedial action where necessary and have full confidence in both the airtightness of your room, and the effectiveness of your ventilation in circulating clean air.

Solving the problem of clean air

Human Resources and Facilities Management Teams are tasked with keeping buildings and spaces comfortable, sustainable, efficient, safe, healthy and well maintained, and this list keeps growing as buildings, including residential buildings are expected to deliver more. More can include addressing the effects of Climate Change by making a building more energy efficient. More after this pandemic will include a critical appraisal of indoor air quality.

Seventy per cent of the world's population spends an estimated 90% of its time indoors, and the World Health Organisation estimates that in 2020 there were more than 6 million premature deaths due to air pollution much of it attributed to poor IAQ. Digitalisation has the power to evolve buildings from being fixed passive structures into highly interactive and richly informative systems. Homes are becoming more autonomous, so that the mechanical components inside of the spaces created can ensure that occupants are safer, healthier and more comfortable.

Addressing air pollution

Air filtration has never been considered a hot topic, but reflecting on what we know now, perhaps it should have been. Air quality plays an important role in our physical and mental health, and with COVID-19 good air filtration could mean the difference between sick and healthy, and in some cases, life and death. A fundamental requirement for energy efficient mechanical ventilation and for effective air filtration is achieving a minimum level of air tightness in buildings. Air pollution is an increasing concern, as is maintaining an adequate level of oxygen within the built environment.

The air we breathe is made up of multiple gases, however for a human to function normally the air must contain enough oxygen. Under normal atmospheric pressure we normally inhale air that contains 20.9% oxygen; if this falls even by one or 2%, then functionality starts to become more laborious and the environment turns hypoxic, meaning that oxygen levels are low and could be harmful. Humans like fires need to have a constant and assured level of oxygen, and as we consume oxygen, more must be delivered to us.

The link between pandemics and building ventilation

> **This pandemic has shown the true value of good ventilation systems in buildings.**

The design choices being programmed into buildings right now will be with us for years to come. This is a good thing because of the increased emphasis being placed upon, "Build tight, ventilate right." COVID-19 will not be the last pandemic disease we will suffer, but our spaces will be better prepared for when the next one strikes. Frequent, regular and periodic testing for air tightness, air permeability, and quickly locating and quantifying air leaks in buildings, so that immediate remedial action may be taken, is now possible. Indoor air quality is a key issue in building design for homes, offices, hospitals, schools and factories. Our living and workplaces, be they at our homes or elsewhere, are where we need to be safe and productive.

This pandemic has shown the true value of good ventilation systems in buildings. There is a newfound respect for a hitherto poorly understood area of building engineering services. As we move on from a Government rescue plan to a Government recovery plan, an essential component of "Build back better," should include frequent, regular, and periodic, mandatory testing for air tightness in the built environment. Thanks to Coltraco Ultrasonics and their Portascanner® AIRTIGHT 520 this is now a faster, better and cheaper process. ■

Virtual reality brings the AT Awards to life

Words by Scott Berry, Managing Director, Applecore Designs Limited

The standard of entries for the 2020 AT Awards was higher than ever. If you take a look at the winter edition of *AT Journal* you will see the breadth and quality of projects both large and small, as well as a showcase for some of the brightest and best talent in Architectural Technology.

Walking through an Award winning entry with the aid of VR

At Applecore Designs, we have been a media sponsor for the AT Awards for the last three years. By combining the latest virtual reality and gaming technologies we always try to bring something new to the event to help highlight the great work being produced.

In 2018, when physical events were still possible, CIAT created exhibition pods to showcase each project and we offered all attendees a cardboard VR viewer to experience 3D models in virtual reality. The following year, our immersive technology proved popular with attendees at the Awards, who queued up to try our virtual reality headsets for an in-game immersive experience.

A VR gallery to showcase 3D models

In 2020, with all events shifting online, CIAT approached us to ask if we could create something different for the Awards.

Our idea was to create a space to offer more than just photographs. Instead, we wanted to provide attendees with an experience, an opportunity to visit a gallery of projects and explore the models of the winning designs. We opted to create an online gallery, giving the visitor the feeling of walking into a real building to create a fuller virtual experience.

Attendees could visit different areas of the virtual exhibition for each Award category and could move around the exhibition space to view the Finalists.

Creating a virtual exhibition space with Graphisoft's BIMx

We took the models from the Finalist's designs – provided in a range of different formats including ArchiCAD, Revit, Sketchup and IFC – and we imported them into Graphisoft's BIMx, creating a virtual reality view of each of the projects.

Attendees at the Awards could then enter the virtual reality gallery and 'walk around' the space using a keyboard and mouse or touch-screen. For the Finalist projects, visitors could access the BIMx model to get a fully immersive experience of the property.

The virtual exhibition is available to view online at applecoredesigns.co.uk/at-awards-2020-gallery/ and a short video explains the navigation. Take a look at all the projects and enjoy the BIMx experience.

If that inspires you, then do enter the AT Awards this year.

How BIMx can help with your communications

BIMx is an incredibly versatile communications tool. Here are just a few examples of how it can help architectural technologists:

1) Helping clients to visualise new spaces

Whilst those trained in Architectural Technology are used to visualising spaces in 3D, for many clients this can be a challenge. BIMx helps to bring your designs to life and enables clients to immerse themselves in the space – easing and speeding up decision making.

Cummins + Voortman used BIMx extensively with the client, contractor and subcontractors throughout a contemporary residential extension.

"BIMx gives us a tremendous amount of confidence in our design and it really helps to coordinate and communicate with clients. The high-quality renders and the BIMx hypermodel helped with the decision-making process and gave our client full confidence in the proposed design," said Bernard Voortman, director of Cummins + Voortman.

"Moreover, during the construction phase, we used BIMx and the Google cardboard viewer with our client onsite, which allowed him to stand in the building and see exactly what the extension would look like when it was completed. He absolutely loved that."


Visualising a contemporary extension for an historic property

2) Helping to secure planning permission
Gaining planning permission can be a time-consuming and costly element for any project. In addition, if there are particular challenges or concerns, this can result in too much compromise in the final designs. BIMx offers the opportunity to work alongside planners to come to an early mutual agreement that is acceptable to all.

Securing planning permission for a contemporary home
With the help of Graphisoft's BIMx virtual viewing software brp architects were able to show the planners exactly how two new properties would look and fit into their surroundings.

"The planners loved BIMx; it leaves no stone unturned – really bringing the design to life," says Lee Hankins, associate, architect and BIM manager at brp architects.

BIMx helped to secure planning permission for contemporary APRA House

3) Communicating with contractors on-site
Translating designs into physical buildings is a complex process. While builders are used to working with 2D drawings and plans, with the help of BIMx, there is less room for interpretation and fewer questions to answer. This can result in a smoother and faster construction process, saving money and time on site.

Direct communication between BIMx users and the design team is also possible when the project is hosted in BIMcloud. This includes instant messaging, images and red-lining, allowing questions and issues to be resolved quickly.

Speeding up construction process
Throughout the 22-month construction phase, Lafferty Architects used Graphisoft's interactive BIMx tool extensively to communicate the plans for Zurich House with the contractors.

"The contractors had iPads on site and we pushed the BIMx model out to them to show them exactly what needed to be done. This helped immensely with our communication, it meant we had a lot less questions to answer. The whole construction process was so much faster with the help of BIMx," says Oliver Nolan, Director at Lafferty Architects.

Communicating plans via BIMx speeded construction for Zurich House

4) Improving communication with all stakeholder groups
From the smallest house extension, through to the largest commercial development, there are multiple stakeholders involved in every project. BIMx can be used as a presentation tool in meetings, on site or in clients' homes. Accessible to all on a tablet, smartphone or PC, it enables every stakeholder to be fully involved in the decision making.

Using visualisation to improve communication
Graphisoft's BIMx visualisation tool played a key role in the Scenario House project, helping to convey the design ideas to the planners and resulting in a much smoother planning process.

"We love the capability that BIMx offers," says Ran Ankory, director of Scenario Architecture. "It enables clients, planners and contractors to view the Archicad model either on tablets or smartphones, or with Google cardboard for a full VR experience. Our contractors also love BIMx. They can access it on-site on their tablets and we always have it open when we go to site meetings."

BIMx helped convey the ideas for Scenario House to the planners

5) Improving remote communications and decision making
While Covid-19 has forced travel restrictions and remote working, it is likely we will see a permanent shift to more remote meetings into the future. BIMx models can be easily shared online during a video conference, enabling discussions to progress and decision-making to take place regardless of location.

BIMx and VR for Architecture CPD
BIMx is free to download and is available as a desktop version for Windows and macOS, and a tablet and smartphone version for Android and iOS. BIMx files can also be viewed directly through your web browser, which may be suitable for smaller projects.

We also run a regular VR for Architecture CPD course, introducing you to some of the concepts of VR, and including information on using BIMx with VR. All attendees can also register for a free cardboard viewer. For more information on our upcoming CPD courses and events, please see: applecoredesigns.co.uk/core-events

We would also be happy to arrange a virtual demonstration of ArchiCAD and BIMx, to show you and your studio how you can move to model-based design and share 3D models with your clients, while improving efficiency and coordination. ■

Six tips from Houzz to create a solid digital marketing strategy for your business

Since the “dot-com” revolution began in the 1990s, and now more than ever, the COVID-19 crisis has accelerated the importance of having a strong online presence and 2021 will reinforce this trend even more. Companies have never cared more about their brand and communications than they do now. With social media, it is critical to carve out your own foothold in cyberspace.

Thankfully, developing a strategy around digital marketing does not have to be a drain on your resources. You can showcase your skillset and promote your value with just a few clicks and reach a broad audience very easily.

Here Houzz, the leading online platform for home design and renovation, share six tips on how digital marketing can help you improve brand awareness and attract more potential customers.

1. Build your brand

Did you know that 9 out of 10 individuals research on the internet when they want to hire professionals in their area? Branding is your long-term marketing strategy and whether you’re the industry leader, or an up and coming new business, branding is essential for driving the way potential clients perceive your work. Online marketing is the most efficient way to capture a wider audience, tell your story at a glance, and get others to brag about you -- all at once. It’s important to communicate what your business does, highlight the services available to your future clients and differentiate yourself from the competition. To do this, make good use of social networks, have a powerful and responsive website and your Houzz Profile! Your Houzz Profile is where you can showcase your work online, like a virtual shop window.

2. Show your true ‘self’

According to Houzz data, homeowners prefer professionals who show themselves as they are, without hiding behind a logo. Make sure that both your Houzz profile and your website use real photos and videos of you, your team, your business and your projects. Describe yourself and clearly explain what your company offers. And ask your colleagues, collaborators and your clients to write a review of your work. The more people who see you, the better results you will get and the greater your reach will be. Explain your story, tell people what you like and what your personality is like; put yourself in the shoes of your customers: what would they like to know? First impressions really count!

3. Know your audience

To communicate who your business is you must be clear on whom you are directing your message. You need to reach what we call the empowered client. They are using a mobile device, online 24/7, are well researched before making any purchases or hiring decisions and are participatory. They want to feel part of the process and like they made important and empowered decisions.

4. How to get clients

Once homeowners can recognise you as a trusted local brand, it’s the perfect time to get in front of your ideal prospects so you can generate enquiries. A strong online marketing campaign targets homeowners in the communities you serve, who are looking to hire professionals for projects like yours. More than 72% of homeowners in the Houzz community are actively looking to hire, so make sure you are marketing in the places that actually reach the right clients. Whether they’re browsing the photo stream for creative ideas, or completing our comprehensive Project Match enquiry, homeowners are seeking a meaningful connection with our professional network. Houzz Pro can help you generate more leads. The software can support you with your business management, grow your profits and attract more clients.

5. Make a good impression

Homeowners only need 10 seconds to form a first impression of your website or profile. To ensure that this first judgment is positive, there are certain aspects that should not be missing: a modern design that is mobile-friendly, high-quality photos or videos of your work, well-written content about your business, recent reviews and recommendations and importantly, a contact form so they can easily enquire.

6. Invest in marketing to avoid losing customers

According to studies, small businesses only need to spend an average of 1% of their gross income to hire a marketing expert. However, if you do not have a strategic plan or it is your first contact with advertising, it can be a very complicated process. With Houzz Pro, you will not have that problem, the team will help and guide you throughout the process and create a strategy that is adapted to your needs and budget. ■

Subscription Renewal 2021/22 | Reminder

As your professional body we remain committed to supporting you

> Your Executive Board has considered how best to assist you to enable you to continue your membership – they are very aware, from their own personal experiences, how you may have been impacted.

Eddie Weir PCIAT

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AGM 2021

Notice of the Annual General Meeting 2021
Notice is given that the Annual General Meeting of the Chartered Institute of Architectural Technologists will take place on Saturday 27 November 2021 for the following purposes:

- To consider the Annual Review.
- To consider the accounts and balance sheet as at 30 April 2021.
- To re-appoint the Auditors and authorise Council to fix their remuneration.
- To receive and debate the Resolution(s).
- To announce the results of the election of members to the Council and Regional and Centre Committees.

Francesca Berriman MBE HonDTech
Chief Executive
May 2021
CIAT, 397 City Road, London, EC1V 1NH, UK

FAQs

What is the AGM?
The Annual General Meeting (AGM) is the yearly business meeting for the Institute, which is required to comply with the Laws of the Institute (please see the formal notice published here).

Where is the AGM being held?
The AGM will take place at the Radisson Blu Hotel which is within walking distance from Manchester Airport. This hotel is the only hotel directly connected to the Airport's Skylink Walkway. The *provisional* start time is **10:00**, however, the AGM agenda and actual timings for the day will be confirmed in September, following the Council meeting (once the business for the AGM is known).

The AGM business will be conducted in the morning followed by a networking lunch and a conference in the afternoon.

Who attends the AGM?
The meeting is Chaired by the President who is supported by the Honorary Secretary, Honorary Treasurer and Vice-Presidents. Each Region/Centre has representation at the AGM, which is its Councillor and Voting Delegates, who have been elected to represent the membership by the Regional/Centre Committee. Non-members who attend are the Auditor, to present the accounts, the Chief Executive and support staff.

Can I attend the AGM?
Any member can attend the AGM but you must register your attendance. As a member you may take part in any debate but cannot vote. The vote has been delegated to the Voting Delegate from the member's Region/Centre.

How do I register to attend?
Please register your attendance by emailing r.cookanderson@ciat.global

If I am a Past Chairman or President, do I still need to register to attend?
Yes, Past Chairmen and Presidents will be invited and will need to register to attend the AGM.

Will I receive papers for the meeting?
All members who have registered to attend the AGM will receive a set of papers electronically before the meeting takes place.

How is the vote taken?
Only Voting Delegates can vote and they are voting on behalf of their Region/Centre, as delegated by the Regional/Centre Committee. The vote will be via an online platform to ensure that the vote is recorded fairly and correctly.

How is my vote represented?
Your vote is delegated to your Regional/Centre Committee. You will need to contact them directly and details can be found here: ciat.org.uk/membership/regions-centres-aspiration.html

How are the Voting Delegates elected for my Region?
In the first quarter of each year, the Chief Executive advises Regions on the number of Voting Delegates they are entitled to elect to represent the view of their Region. All Voting Delegates must be Chartered Members and all Chartered Members in the Region must be informed of the election of Voting Delegates to ensure fairness.

As agreed by Council, the breakdown is based on membership as at 1 March in any year. A Region is entitled to:

Member numbers	Voting Delegates
100	1
100+	2
350+	3
700+	4

How are Voting Delegates elected for my Centre?

In the first quarter of each year, the Chief Executive advises Centres on the number of Voting Delegates they are entitled to elect to represent the view of their Centre. All Voting Delegates must be Chartered Members and all Chartered Members in the Centre must be informed of the election of Voting Delegates to ensure fairness.

Centres 01 and 03-07 elect one Chartered Member who will have the necessary number of votes according to the Centre's membership, with, where appropriate, multiple votes.

The Republic of Ireland Centre's number of votes is based on the Regional model and will have its number of Voting Delegates based on the member number in the Centre.

What are the Resolution(s)?

The AGM will receive and debate the Resolution(s) put forward, these are typically changes to the Laws of the Institute.

What is the process for Resolution(s) for consideration at an AGM?

Regions/Centres who wish to table a Resolution(s) for consideration at the AGM must submit their Resolution(s) in the prescribed format to the Chief Executive in line with the timetable issued to the Region/Centres in the first quarter of each year. For this year, the deadline is 3 September 2021. For further information please contact the Chief Executive's Office, j.rowlands@ciat.global.

The Chief Executive will receive and present the necessary papers for Council's consideration, in consultation with the Regional/Centre Councillor, and the Council will take a decision on whether to place the matter before the AGM, as an Institute Resolution and handled in the same way as any other Council recommended Resolution.

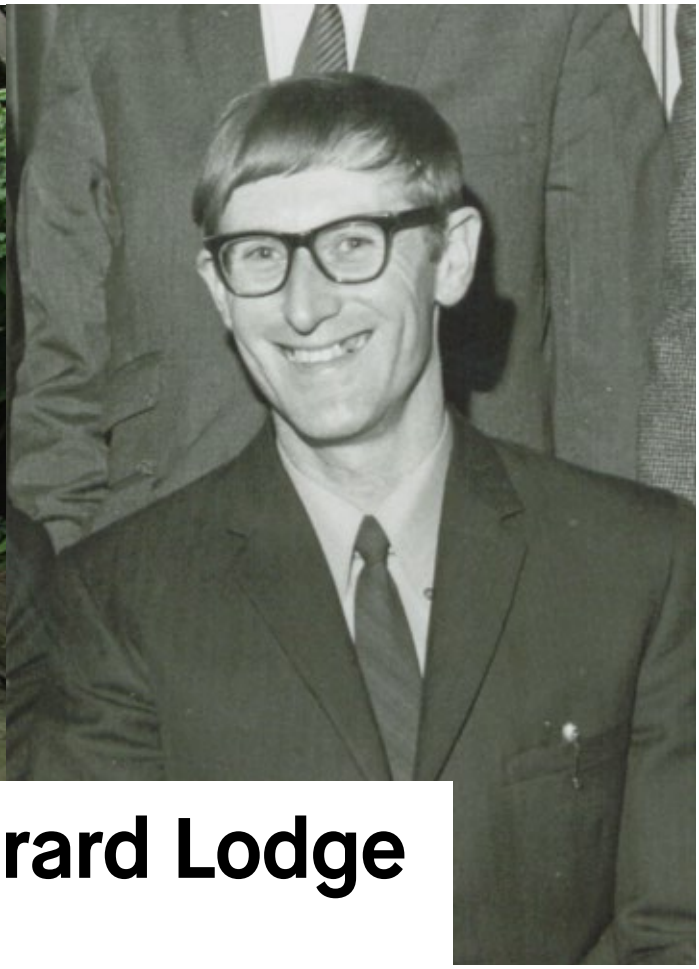
Individual members, other than members of the Regional/Centre Committee, also have the right to put a proposal to be considered at the AGM. Any such member may approach their Regional/Centre Committee for consideration of their views. The member should be invited to the Committee meeting for that specific item of business. If endorsed by the Region/Centre Committee, the proposal would then become a Region/Centre submission. This must also be on the prescribed format.

Alternatively, the member may approach the Chief Executive direct with a request for a proposal to be considered. The Chief Executive issues the notice of an AGM together with the timeframe for submitting Resolution(s) for an AGM in line with the Laws of the Institute.

When are the Resolution(s) published?

The Resolution(s) are published in September following the autumn Council meeting. These are circulated with the *Annual Review* to all members, with the autumn issue of *AT Journal*.

If your question has not been answered please contact the Chief Executive's Office by emailing r.cookanderson@ciat.global ■



Anthony ‘Tony’ Gerard Lodge PCSAAT MCIAT

30/08/1932 – 14/04/2021

Words by Adam Endacott, Editor and Archivist

At the 50th Anniversary celebrations in 2015, when Tony received his Gold Award, and on hearing the citation that accompanied it, he publicly said “I want to meet that person as whoever wrote that, I want them to write my obituary.” Well, six years on I am now sadly fulfilling that request.

Tony was a real character and somebody who I always welcomed a phone call from, even though he was conscious of my time. It was a privilege to always speak to him and hear what my friend had to say. I use the word friend because he was. Yes, he was a Founding Member, a Past Chairman and a monumental figure in the history of CIAT but at the heart of it all, I was honoured to be able to call Tony my friend. I had the upmost respect for everything he had to say and tell me. It was always a treat as he was very humorous so there was always a bit of a giggle amongst the seriousness of what was going on in the built environment sector at the time.

Even when he suddenly went blind in June 2009, that did not deter Tony from an active interest in the Institute and remained even more inspirational. With his large notepad and marker pen in hand, he would write down any information that I had given him so he could keep in contact with his friends and colleagues. Calling new Presidents to wish them well or to talk to an Honorary Officer regarding a particular issue that concerned him.

Born in Dublin, Tony attended Blackrock College and went on to study in the Department of Architecture at the Technical Institute in Bolton Street between 1951-53. He moved to London in May 1954 to continue his studies and started his working career, retiring from NCH in 1995. I was fortunate to have been in his company on many occasions where he would tell stories from the past with considerable detail and precision. He had great spirit, with a sound knowledge and wise intellect. He will be greatly missed but remembered with much affection and a smile by the Institute that he was proud to be a part of. Our thoughts are with his widow Anna, whom he married in 1957, his seven children and family.

What follows is the full citation for Tony’s Gold Award from 2015:
“Without pivotal figures in an Institute’s history with drive, nerve and personality it is unlikely that it will succeed

and survive. Reflecting on CIAT's history, one name is monumental from the very beginning and it is without doubt that CIAT would not be where it is today without the tremendous impact that Tony Lodge has made not only in the early formation of SAAT in 1965, and before, but throughout the course of its life. He is a fountain of knowledge and a wise guru that CIAT is lucky to have and treasure as one of its founding fathers.

Tony is a meticulous and humble man who has always had the interests of the Institute at heart – whilst he may not be actively involved at the higher level anymore he lends his solid knowledge and balanced thoughts to ensure CIAT progresses, doesn't forget what it is and that the members are best served.

As an essential foundation in the early formation of the Institute, Tony worked tirelessly, whilst holding down a day job and supporting a family, to get SAAT up and running operating as its first Honorary Secretary and Treasurer; even having to be the staff principal to cover following the unplanned departure of Dr Cooper and then hand over to the safe hands of Joan Yates. Working alongside the Institute's other pivotal forefathers such as Alan King, George Lowe and John Newey, Tony pulled it all together and successfully led SAAT in its formative years and even turned his hand to producing the brief for the design of the Society's distinctive logo. Tony was active within all areas of the Society and was fundamental in helping to establish the Irish Association of Architectural Technicians (IAAT).

Tony is a man of ideas, which are represented with much thought and care and presented in a clear and informed manner. This skill has added much benefit to many a Council meeting or critical decision over the years and makes him a highly respected figure and encyclopaedic knowledge of all things Institute. Over 50 years, Tony has held all three of the main offices; Chairman, Secretary and Treasurer, sat on numerous Committees and Taskforces and acted as Regional Councillor for the Greater London Region in the early 1990s.

Now unfortunately blind, Tony continues to take a very keen interest in the Institute that he helped to nurture and develop and looks after it as any grandfather would their grandchild. He will regularly feedback on new initiatives or pass on his ideas to progress the Institute that he loves. Without such a passion, drive and determination of unsung heroes such as Tony, CIAT would not be the forward thinking and vibrant Institute it is today.

It takes a momentous anniversary to look back and admire the skill and work of Architectural Technologists that have gone before and when you do, you can see certain beacons shining out amongst the crowd and one of them will be Tony Lodge."

On receiving the Award at The Savoy, Tony said:
"CIAT has been a resounding success and when you reflect on why, it was because it was carefully conceived, it was properly designed, it was soundly built but most important of all, it has been as any good building should be, it has been properly maintained.

My only claim to fame unlike some of my brilliant academic and brainy colleagues is that in 1966 the young SAAT had a crisis – I found myself stepping in as full time salaried General Secretary. I had to resign my job as an architectural draughtsman and I remember then that I received what I now recognise as the very first Alan King Award! Alan took me for a drink and bought me a pint of bitter and I said what's that for Alan? and he said that's gratitude for volunteering to take on this task of running the society until we can find somebody permanent. I drove home and reflected that I hadn't actually volunteered and why Alan King was called Mr Fix It – he fixed me!" ■

Tony with wife Anna and some of his family at The Savoy in 2015, with the Editor to his left.

Elections in September – nominees standing

In the spring issue of *AT Journal*, we showcased the manifestos for those standing for election at Council in September.

Here is a reminder of the positions and the candidates standing:

Honorary Secretary
Gordon J Souter MCIAT

Vice-President Practice
Dan Clements MCIAT

Vice-President Education
Nooshin Akrami MCIAT

Vice-President Education
Carl Mills MCIAT

Candidates gave a presentation at the Council meeting held on 6 March to Regional and Centre Councillors to support their manifestos and to allow the opportunity for questions. We encourage you to liaise with your local Region, Centre or aspirATion about these. The full manifestos can be read on the website at: architecturaltechnology.com/about/honorary-officer-elections/about-the-honorary-officer-elections.html

If you would like to pose your own questions to the candidates or would like to find out more from them, there are two hustings to be hosted by the Institute during June and in July – further details on these will be sent out in AT Weekly and across our social media channels. Do not miss these opportunities to be able to speak directly to those standing for election.

The campaign trail continues and here is a summary of the key dates:

Campaigning by candidates including hustings:
Now – 4 September 2021 inclusive
Election ealerts and updates on the website:
24 February – 4 September 2021 inclusive
Election at Council:
4 September 2021
Candidates advised if not in attendance at Council Ealert announcing the election results:
6 September 2021
Assumption of position:
27 November 2021, close of 2021 AGM

Membership news

Fellow Members
We would like to congratulate the following Chartered Architectural Technologists who successfully completed their application and are now Fellow Members, FCIAT:

028399	Gihan Badi	Yorkshire, 02
014255	Christopher Brown	Yorkshire, 02
016158	Jonathan Brown	Yorkshire, 02
022217	Elliott Crossley	Yorkshire, 02
025392	Jonathan France	Yorkshire, 02
007937	Mark Kennett	Yorkshire, 02
023033	Matthew Peake	Yorkshire, 02
034258	Angela Rossi	Yorkshire, 02
017760	Simon Lewis-Pierpoint	North West, 03
014198	Colin Savage	North West, 03
023867	Colin Stuhlfelder	North West, 03
008705	John Halton	East Midlands, 04
010049	Christopher Perkins	East Midlands, 04
015763	Graham Smith	East Midlands, 04
015645	Allan Smithson	East Midlands, 04
008318	Paul Burton	West Midlands, 05
018603	Daniel Crann	West Midlands, 05
032280	Louis Gyoh	West Midlands, 05
026838	David Heesom	West Midlands, 05
007329	Stephen Scaysbrook	West Midlands, 05
008920	Michael Turner	West Midlands, 05
021366	James Dean	Wessex, 06
006139	Neil Dransfield	Wessex, 06
019543	Usman Yaqub	Wessex, 06
017173	Martin Lewis	East Anglia, 07
018491	Christopher Senior	East Anglia, 07
024786	Frances Peacock	Central, 08
010851	Tony Whitbread	Central, 08
019170	Donald Duncan	Greater London, 09
031120	Heba Elsharkawy	Greater London, 09
029702	Justin Kelly	Greater London, 09
028073	Roisin Ni Chathain	Greater London, 09
019266	Harjinderjit Pangli	Greater London, 09
011299	Gareth Sewell	Greater London, 09
018467	Paul Travis	Greater London, 09
027053	Poorang Piroozfar	South East, 10
016769	Sarah Radif	South East, 10
017769	Paul Chapple	Western, 12
022091	Wayne Kelly	Scotland West, 13
006541	Samuel Allwinkle	Scotland East, 14
022078	Graham Briggs	Scotland East, 14
014906	Stuart Davidson	Scotland East, 14
008004	Robin Dodyk	Scotland East, 14
009563	Jonathan Guthrie	Scotland East, 14
0000580	Suha Jaradat	Scotland East, 14
032142	Seyed Sajjadian	Scotland East, 14
025642	Jonathan Scott	Scotland East, 14
020019	David Comiskey	Northern Ireland, 15
025680	Oliver Henshall	Wales, 16
021857	Adam Parry	Wales, 16
017685	Aled Rees	Wales, 16
021922	Daniel Rossiter	Wales, 16
010543	Anthony Walsh	Wales, 16
019782	Karyn Williams	Wales, 16
019476	Malachy Mathews	Republic of Ireland, C2
017422	Mel McGerr	Republic of Ireland, C2
014067	Donal Murphy	Republic of Ireland, C2
032139	David Campion	The Americas, C4
016272	Paul Harewood	The Americas, C4
026788	Craig O'Halloran	The Americas, C4
017500	Neil Kee	Middle East & Africa, C7

Chartered Members
We would like to congratulate the following Members who successfully attended their Professional Interview and are now Chartered Architectural Technologists, MCIAT:

035822	Peter Cheng	Northern, 01
034868	Simon Murphy	Yorkshire, 02
016856	Daniel Bent	East Midlands, 04
030513	Aaron Edge-Stenson	East Midlands, 04
035102	Daniel Gill	East Midlands, 04
0000245	Luis Zapata Montalvo	East Midlands, 04
035832	Ajay Kambo	West Midlands, 05
031049	Samuel Priest	West Midlands, 05
030780	Lloyd Gordon	Wessex, 06
011117	Michael Hanson	Wessex, 06
025367	Siobhan Tarr	Wessex, 06
030166	Donovan Brock	East Anglia, 07
035647	Adam Ferenczi	East Anglia, 07
033711	Mark Borthwick	Central, 08
028785	Luke Geeves	Central, 08
028849	Christian Hewitt	Central, 08
009072	Adrian Shepherd	Central, 08
033331	Samuel Stephens	Central, 08
034241	Alper Dilek	Greater London, 09
030050	Irfan Tailor	Greater London, 09
019431	Steven Tweed	South East, 10
034212	Gary Fegan	Northern Ireland, 15
035763	John Gorman	Republic of Ireland, C2
033046	Garbhan O'Brien	Republic of Ireland, C2
029038	Jonathan Reinhardt	Republic of Ireland, C2
021659	Brian Westlake	Republic of Ireland, C2
034690	Allan Lompot	Middle East & Africa, C7

Welcome back
We would like to welcome back the following Chartered Architectural Technologists:

024270	Craig Murdoch	Yorkshire, 02
025955	Samuel Perryer	South East, 10
022972	Hannah Bird	Western, 12

In memoriam
We regret to announce the death of the following member:

001489	Anthony Lodge	Central, 08

Leo Forte retires as Moderator
Leo Forte MCIAT stepped down as a Professional Interview Moderator in March 2021 after 17 years of dedication, commitment and service in the role.

The President presents Leo with a small gift of thanks

AT Awards 2021 close in June and July

The AT Awards opened for submissions on 1 February 2021 for the following Awards:

- Excellence in Architectural Technology
- Student Awards for Excellence in Architectural Technology
- Emerging Talent in the Technology of Architecture
- The Chartered Architectural Technologist of the Year
- Gold Award

Full details and application forms can be found on the website. Winners will be announced and presented at the AT Awards event on 22 October 2021.

The AT Awards are recognised as the premier accolades that demonstrate outstanding achievement in Architectural Technology and celebrate the technology of architecture.

AT AWARDS

ciat.org.uk/awards.html
#ATAwards

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